THOMSON 29DL40E

nicam television set 4/3 format

Chassis code ICC19-2H
100 Hz IM technology
29 inch - 4/3 format
SF-H tube
Black Matrix processing
INVAR mask
Stereo sound
Nicam 2 x 20W
Built-in teletext
Standard : PAL / SECAM
NTSC via SCART connector
Norms : PanEuro-LL'BGIDKK'
NAVILIGHT system

image
sound
special features
connectors / general remarks

image

SF-H 29 inch tube - 4/3 format
BLACK MATRIX
Black Matrix processing for optimal contrast
INVAR mask
Intelligent contrast control
100Hz Intelligent Mastering
Zoom
Manual switch to 16/9 format
Total tube size : 29 inch diagonal
Picture size : 27 inch diagonal
Standard : PAL / SECAM / NTSC via Vidéo
Norms : PanEuro-LL'BGIDKK'
Toptext/Fastext/Videotext EPG 2 : 488 pages

sound

Stereo sound NICAM L/BG/I
Power : 2 x 20 W music
4 speakers : 2 mediums, 2 tweeters
Spatial effects / pseudo
Acoustic system
Graphic equaliser

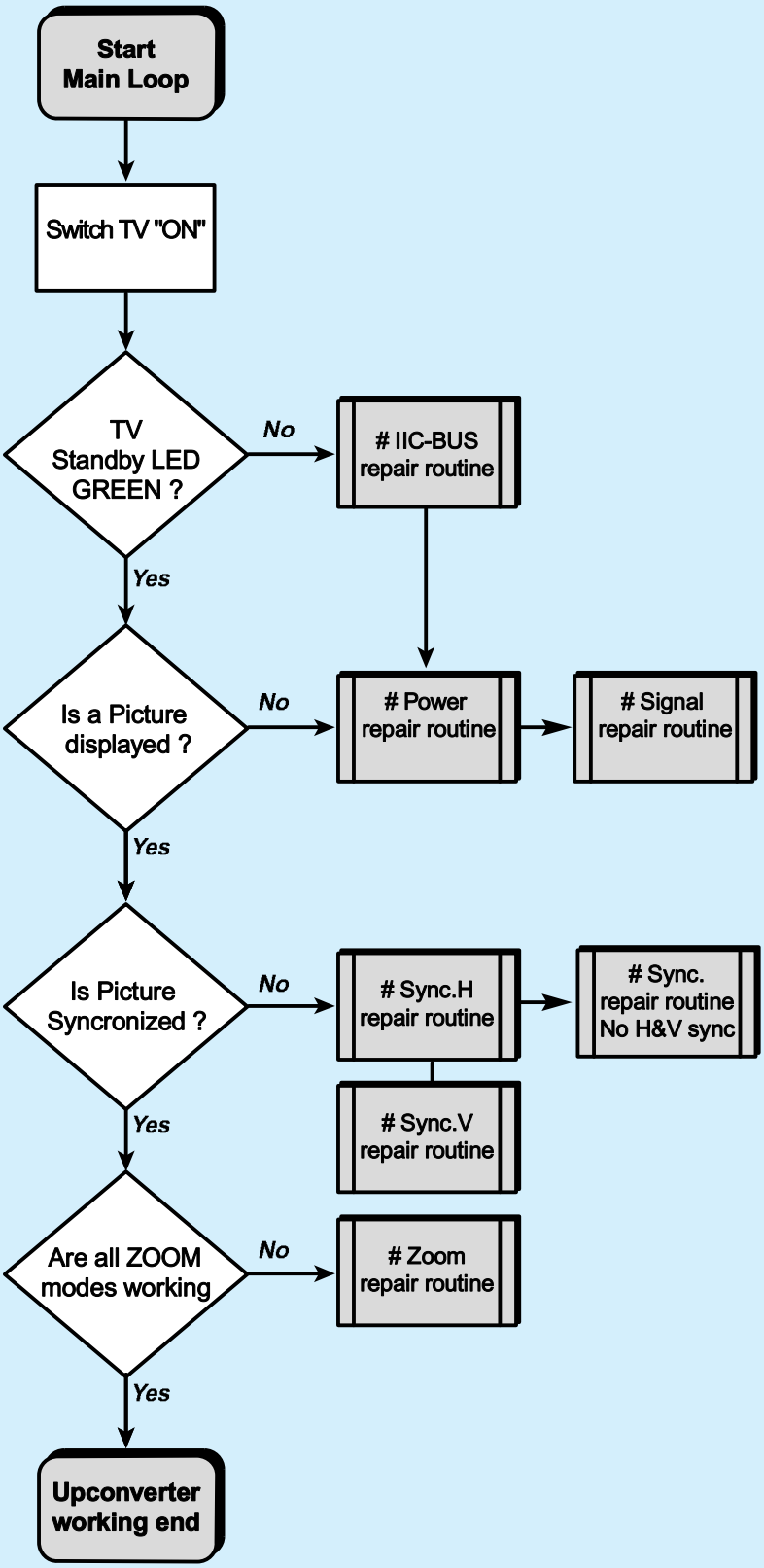
special features

Automatically switches to standby mode
when no signal is present after 5 minutes
Child lock
Sleep control
Wake up timer
NAVILIGHT system
Display of channel number
Memorize up to 99 channels + 3 AV channels
Personnal value memory
Frequency synthesis tuner
Compatible with cable networks
8 MHz hyperband
RCT4000 remote control

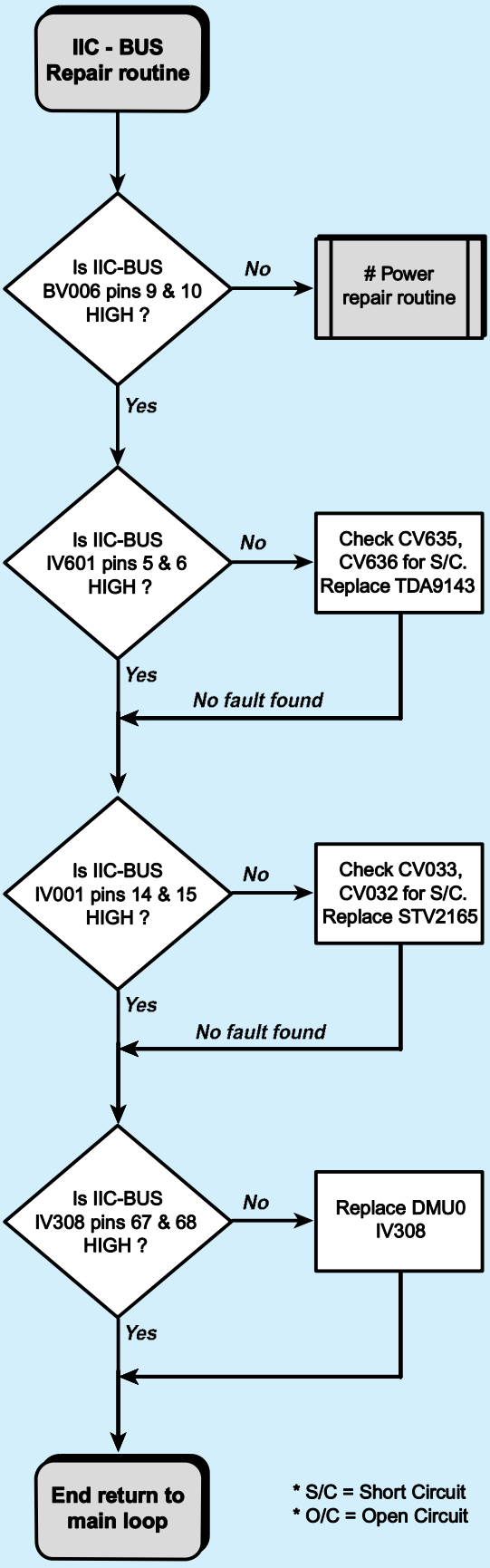
connectors / general remarks

Headphone jack (6.35 mm)
Front or side : cinches in : 2 Audio/1 Vidéo/1 S-vidéo
Rear : 1 antenna connector
3 SCART connectors including 1 S-VHS compatible
2 cinches audio out
Power supply : 220 - 240 V; 50/60 Hz
Consumption : 130 W/h - in stand-by mode 6 W/h
Weight : 41 kg
Dimensions (W x H x D) : 700 x 558 x 483 mm
Optional stand : STTH2930

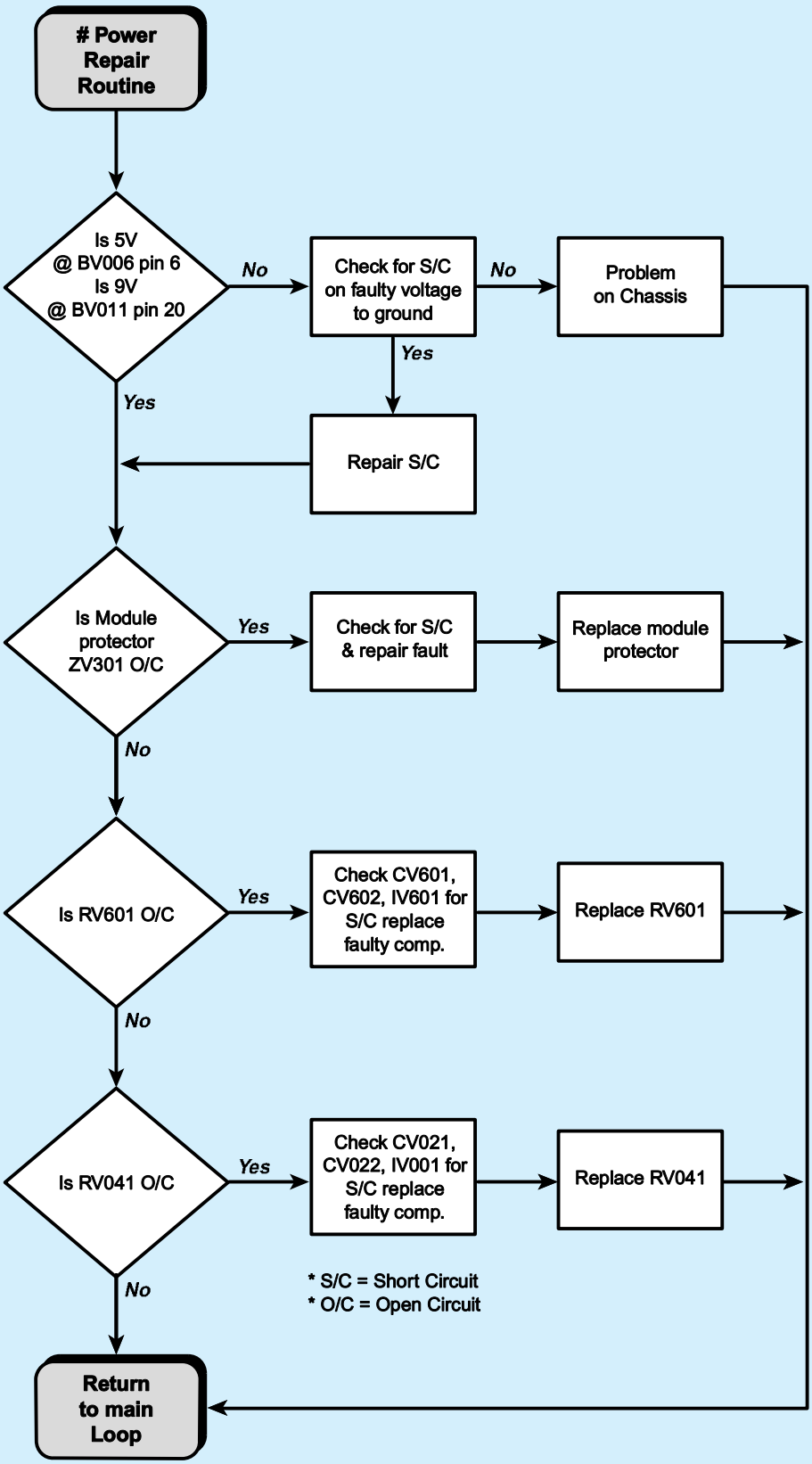
CHECK VIDEO MODULE VM 19100



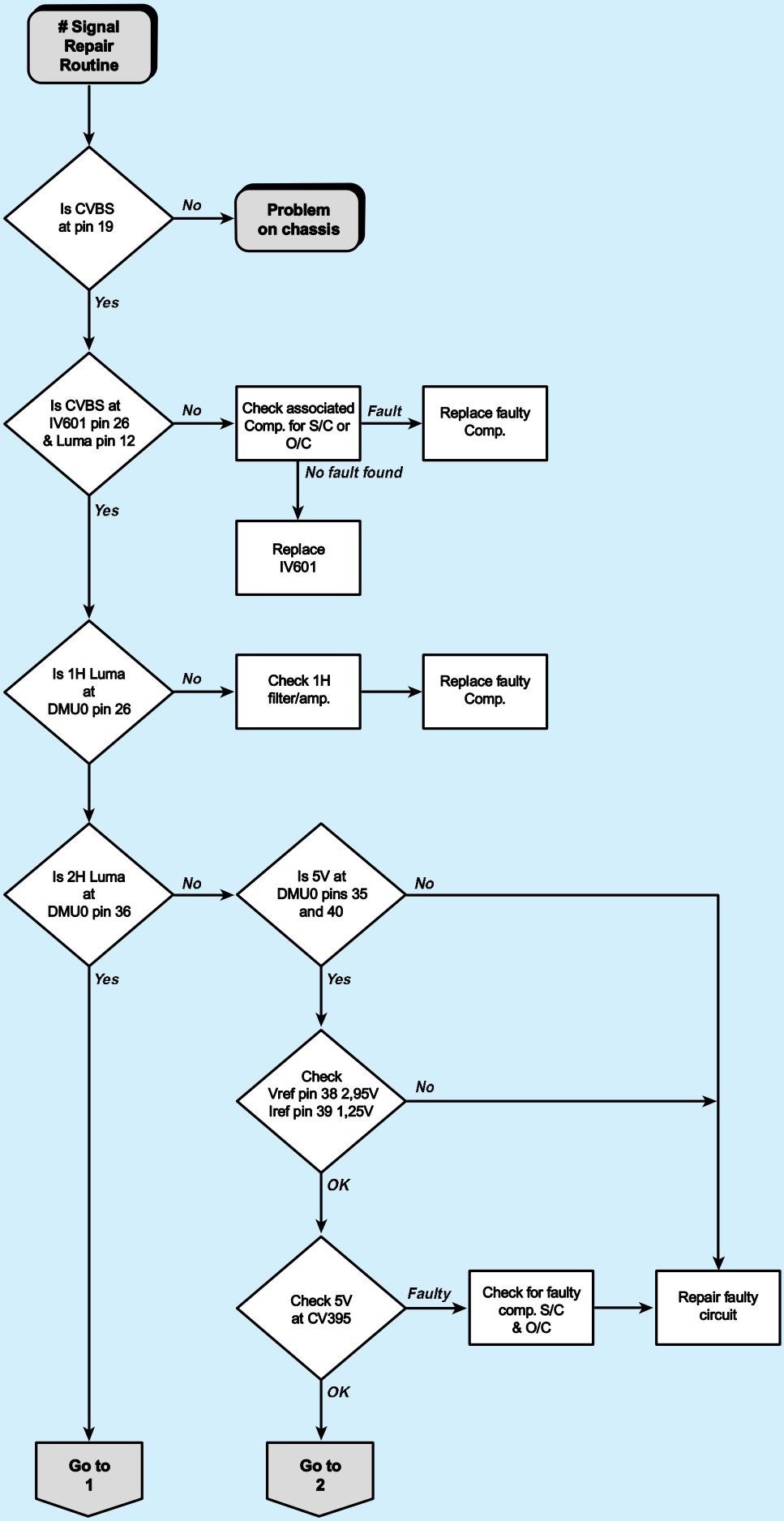
CHECK VIDEO MODULE VM 19100



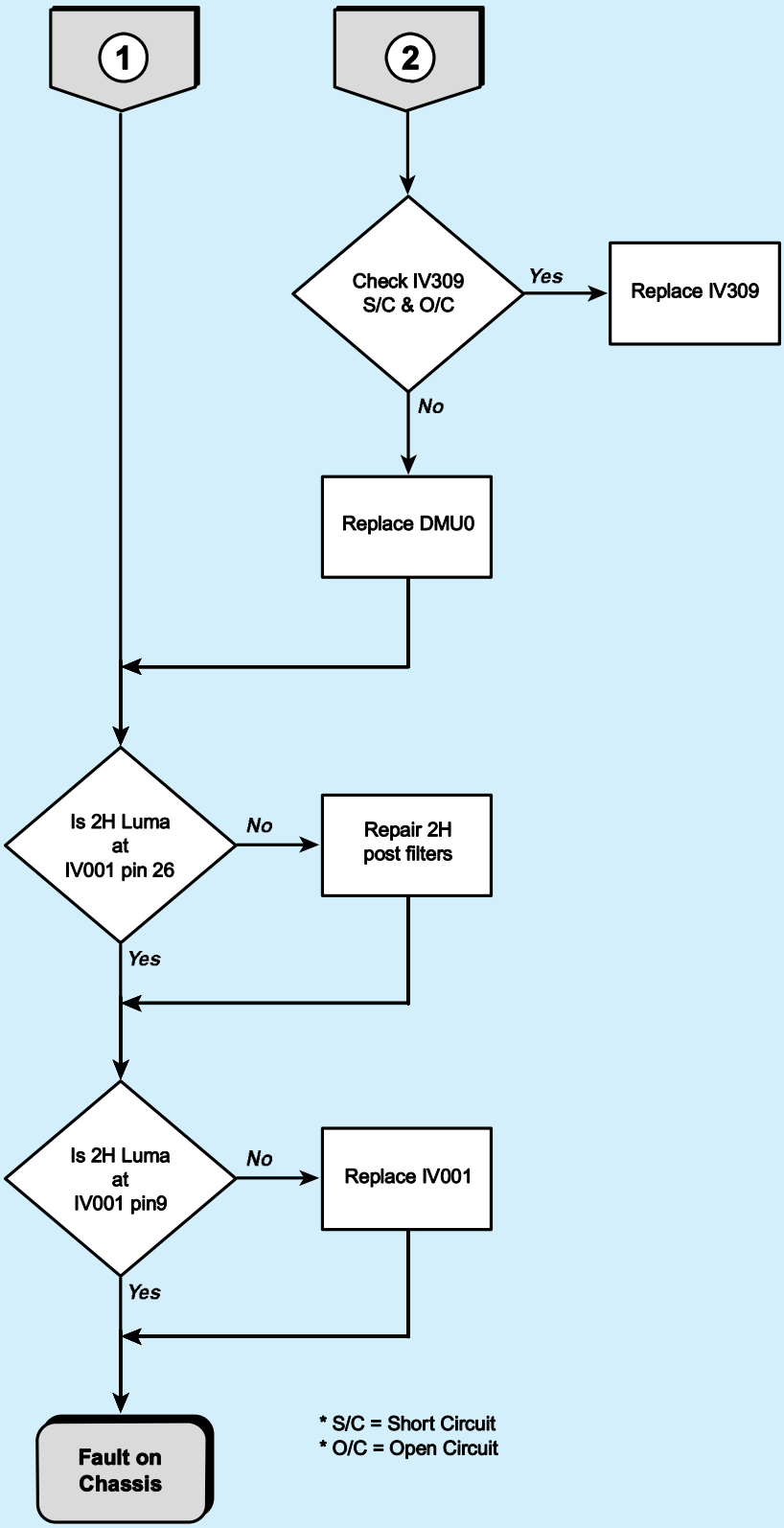
CHECK VIDEO MODULE VM 19100



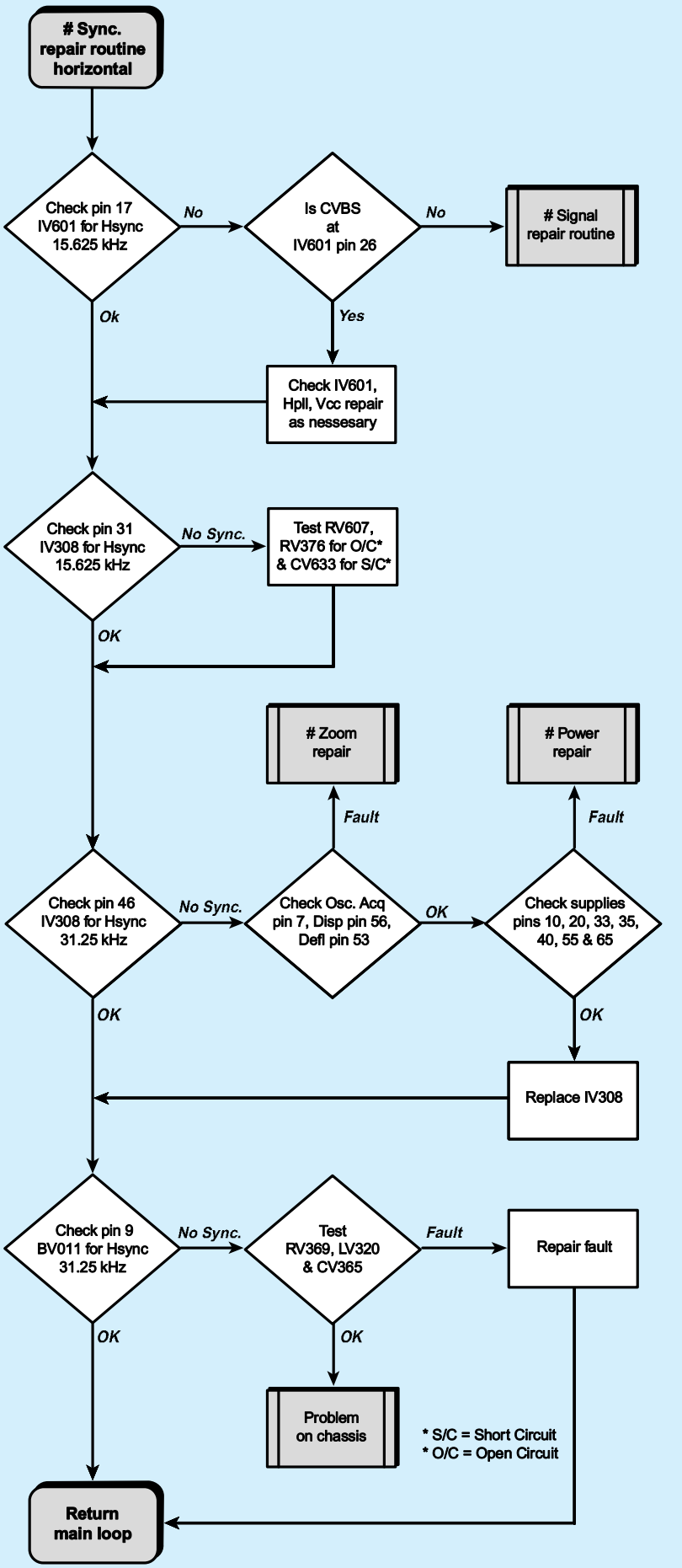
CHECK VIDEO MODULE VM 19100



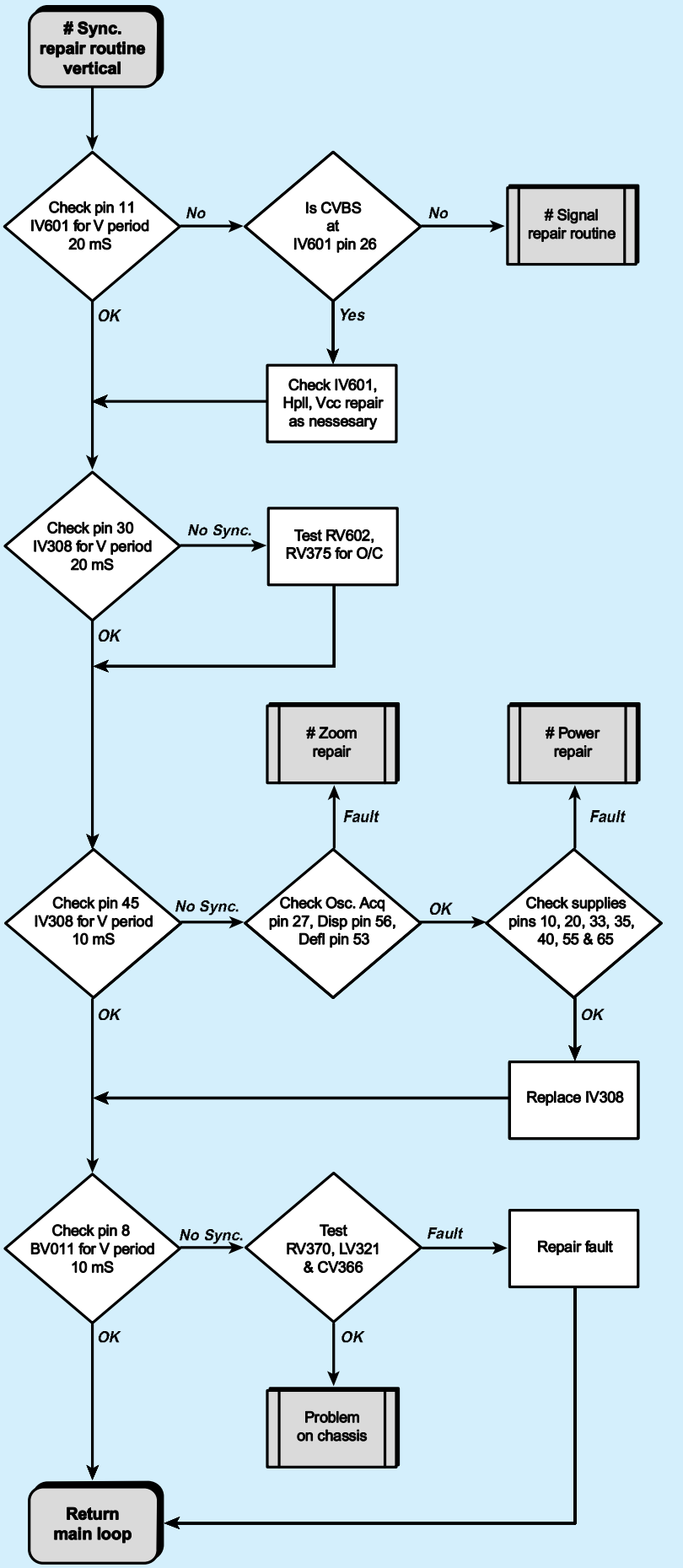
CHECK VIDEO MODULE VM 19100



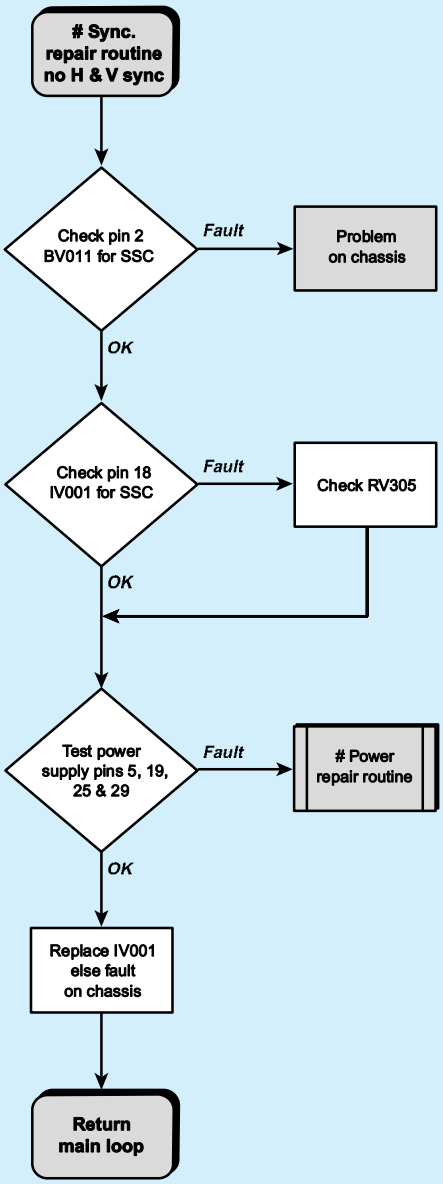
CHECK VIDEO MODULE VM 19100



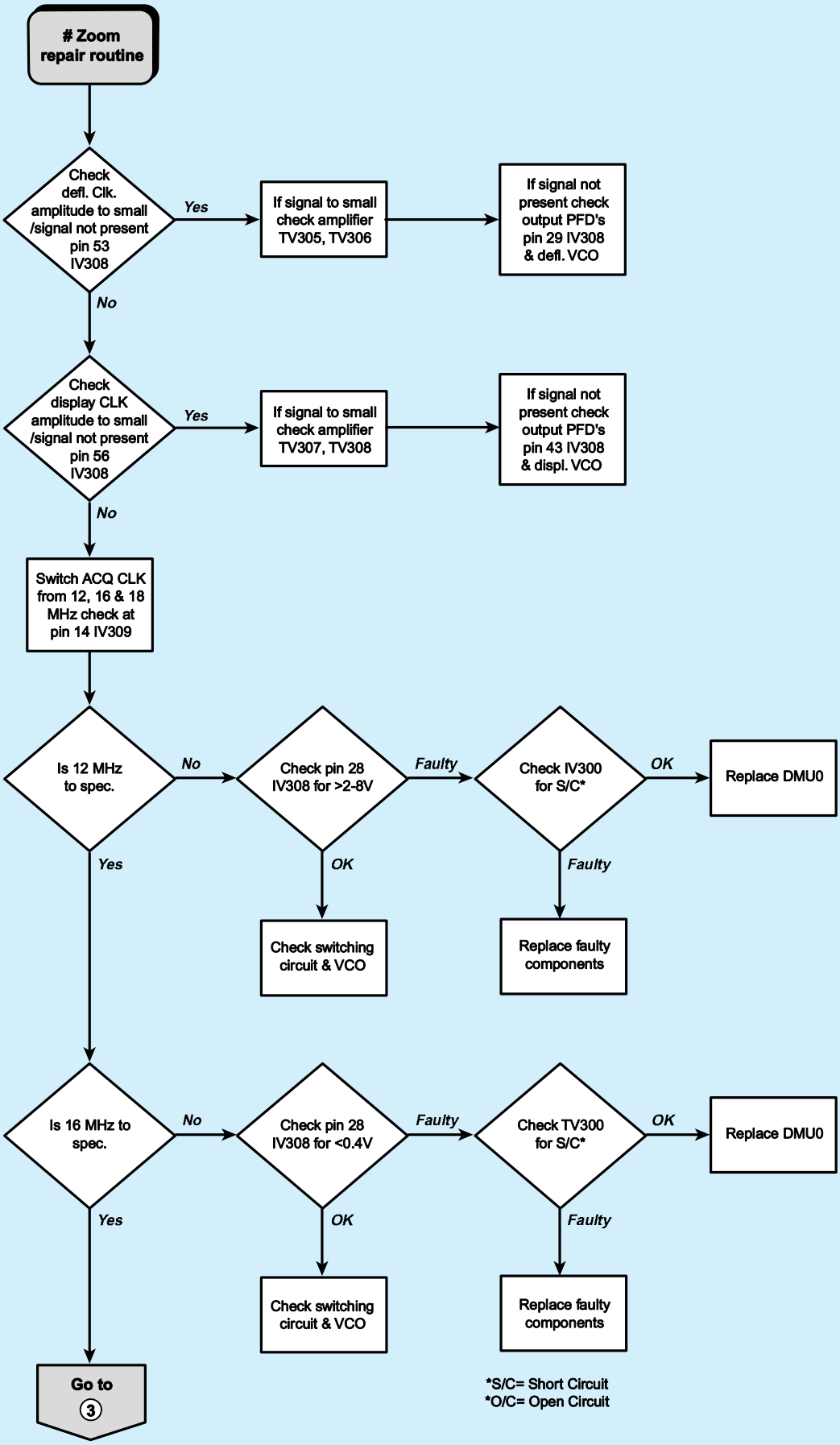
CHECK VIDEO MODULE VM 19100



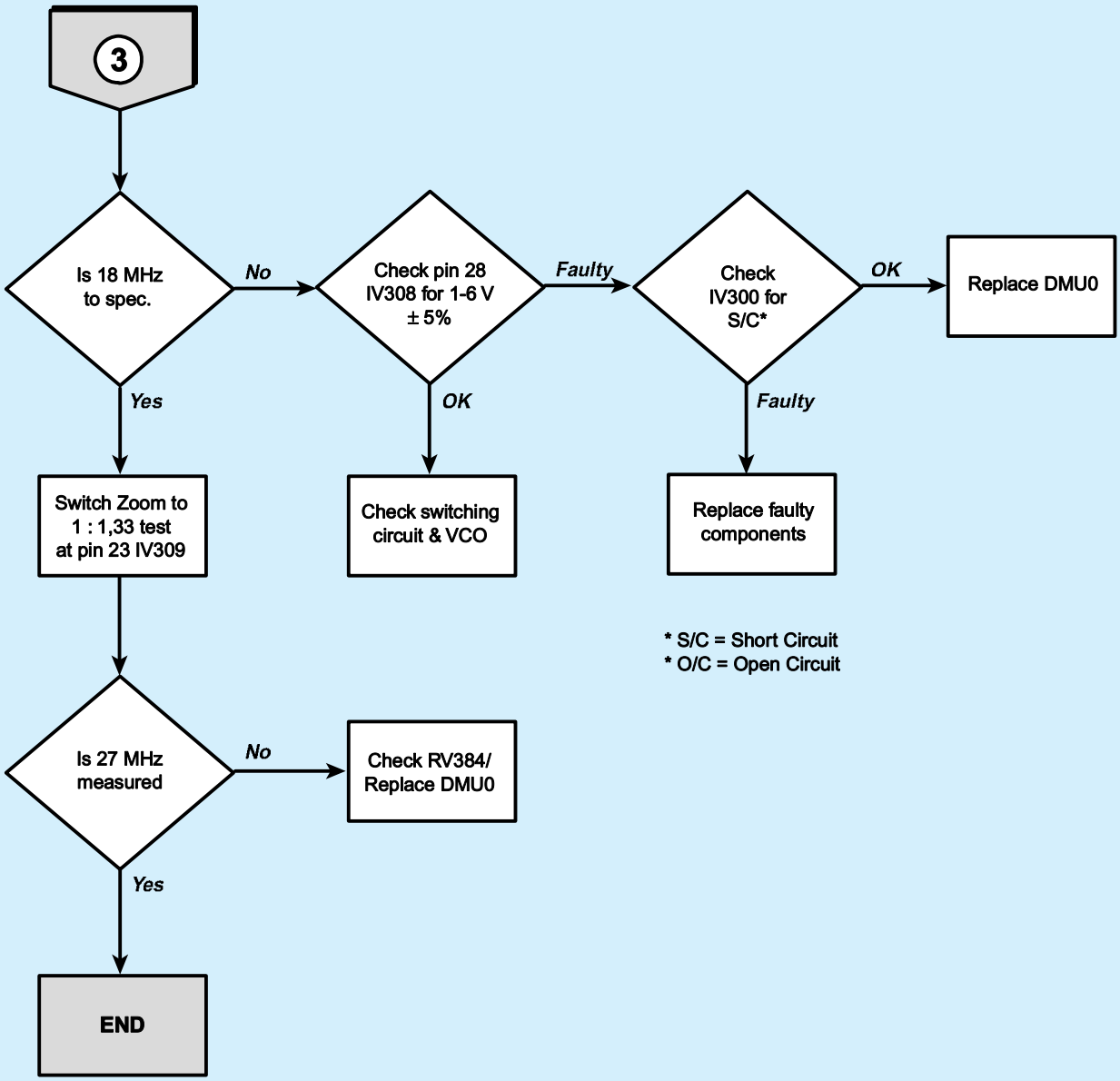
CHECK VIDEO MODULE VM 19100



CHECK VIDEO MODULE VM 19100


Zoom repair routine
Check defl. Clk. amplitude to small /signal not present pin 53 IV308
Yes
If signal to small check amplifier TV305, TV306
If signal not present check output PFD's pin 29 IV308 & defl. VCO
No
Check display CLK amplitude to small /signal not present pin 56 IV308
Yes
If signal to small check amplifier TV307, TV308
If signal not present check output PFD's pin 43 IV308 & displ. VCO
No
Switch ACQ CLK from 12, 16 & 18 MHz check at pin 14 IV309
Is 12 MHz to spec.
No
Check pin 28 IV308 for >2-8V
Faulty
Check IV300 for S/C*
OK
Replace DMU0
Yes
OK
Faulty
Check switching circuit & VCO
Replace faulty components
Is 16 MHz to spec.
No
Check pin 28 IV308 for <0.4V
Faulty
Check TV300 for S/C*
OK
Replace DMU0
Yes
OK
Faulty
Check switching circuit & VCO
Replace faulty components
Go to ③
*S/C= Short Circuit
*O/C= Open Circuit

CHECK VIDEO MODULE VM 19100



ICC19 100 Hz - BASIC- / IM- / MM- SCENIUM Version

tube name	description	CT-Part		DST	Usys jumper	Usys	Version
A66EGW 48X322	4/3 28"MP INVAR BSVM	CT 19101 34 CT 19105 37	10362880 10351530	10460360 10468070	JP915 JP914	134V 137V	ICC19 IM ICC19 IM
A59EGD048X322	4/3 25"SF INVAR BSVM	CT 19105 37	10351530	10468070	JP914	137V	ICC19 IM
A68EGD038X322	4/3 29"SF INVAR BSVM	CT 19105 37 CT 19152 37	10351530 10520610	10468070 10510870	JP914 JP914	137V 137V	ICC19 IM ICC19 MM
A66EHJ 48X 12	4/3 28"MP AK; no BSVM	CT 19103 34	10556010	10551170	JP915	134V	ICC19 BASIC
A68EGV038X322	4/3 29"SF SS INVAR BSVM	CT 19155 37	10562010	10551150	JP914	137V	ICC19 IM/MM
A80AJA 16X120	4/3 33"MP INVAR BSVM	CT 19156 37	10561990	10510870	JP914	137V	ICC19 IM
A80EJA 16X122	4/3 33"MP INVAR BSVM	CT 19156 37	10561990	10510870	JP914	137V	ICC19 IM
A90AFX 16X120	4/3 37"MP INVAR BSVM	CT 19156 37	10561990	10510870	JP914	137V	ICC19 IM
W66EGV023X122	16/9 28"SF INVAR BSVM	CT 19111 34	10444810	10468160	JP915	134V	ICC19 IM
W76EGV023X122	16/9 32"SF INVAR BSVM	CT 19111 34	10444810	10468160	JP915	134V	ICC19 IM
W76EGX023X122	16/9 32"SF INVAR BSVM	CT 19151 34	10520600	10520330	JP915	134V	ICC19 MM
W66EGV023X122	16/9 28"SF INVAR BSVM	CT 19251 40	10578550	10576740	JP917	140V	ICC19 MM + IM + PVM (PANORAMA)
W76EGX023X122	16/9 32"SF INVAR BSVM	CT 19251 40	10578550	10576740	JP917	140V	
W76EGV023X122	16/9 32"SF INVAR BSVM	CT 19251 40	10578550	10576740	JP917	140V	
W76EGV023X878	16/9 32"SF INVAR BSVM	CT 19251 40	10578550	10576740	JP917	140V	
W66LPQ356X99	16/9 28"SF INVAR BSVM	CT 19551 40	10604230	10647440	JP917	140V	SCENIUM XF TUBE
W76LPF350X97	16/9 32"SF INVAR BSVM	CT 19551 40	10604230	10647440	JP917	140V	

RP C19

tube name	description	CT-Part		DST	Usys jumper	Usys	Version
RP - 4/3	4/3 46" - 52"	CT 19400 34	10530110	10521310	JP915	134V	RP C19 4/3
RP - 16/9	16/9 52"	CT 19450 34	10615440	10641600	JP915	134V	RP C19 16/9

ICC19 50 Hz

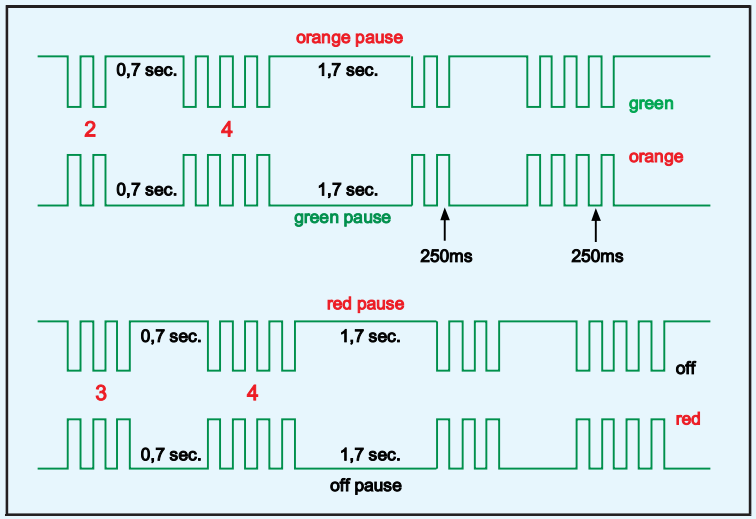
tube name	description	CT-Part		DST	Usys jumper	Usys	Version
A59EGD048X300	4/3 25”SF	CT 19005 31	10510890	10517720	JP915	131V	
A66ECY13X15	4/3 28"MP	CT 19003 32	10351520	10517740	JP914	132V	
A66EHJ 13X 15	4/3 28”MP AK	CT 19003 32	10351520	10517740	JP914	132V	
A68EGD038X300	4/3 29”SF	CT 19005 31	10510890	10517720	JP915	131V	
A80AEJ15X01	4/3 33"MP	CT19006 31	10351840	10517720	JP915	131V	
W66EGV023X115	16/9 28”SF	CT 19032 37	10391010	10517750	JP917	137V	
W76EGX023X115	16/9 32”SF	CT 19032 37	10391010	10517750	JP917	137V	

GENERAL INFORMATION - LED BEHAVIOUR

LED FLASHES

Message transmission.
The Error codes are signalled by the RED Standby LED.

Count number of flashes : error code is signalled in two burst separated by a 0.7 s pause and repeated several times.
There is 1.7 s between each code sequence .



CODES	DEFAUT
11	1st Audio_MSP doesn't answer
12	2nd Audio-MSP doesn't answer
13	Audio-DSP doesn't answer
14	Video IC STV2161/2 doesn't answer
15	Chroma IC 2151/9143 doesn't answer
16	Upconverter DMU0 doesn't answer
17	Audio (or Dolby) module not detected
18	SCART IC TEA6415C doesn't answer
19	Tuner CTT5000 doesn't answer
21	I2C Bus1 data line held low
22	I2C Bus2 data line held low
23	I2C Bus1 clock line held low
24	I2C Bus2 clock line held low
25	Switched 5V not available
26	Tube doesn't get warm in time
27	Deflection detects >3 times protection (problem detected on "breathing" line)
29	DRAM memory of Megatext defect
31	RAM is full
32	A Software-timer has been requested, bus is not available yet
33	The PSI chip (STV2165) doesn't answer
34	The NVM (X24C32) chip doesnt answer
35	13V not available
36	Wrong addr. NVRAM passed to the bus-handler
37	Unexpected level on NMI (Interrupt) line found (possible cause : tube flashover)
38	M3LBus for Megatext is blocked
39	Megatext (SDA5273) doesn't answer
41	bus1 Data line not recoverable
42	bus2 Data line not recoverable
43	MCU (Motion Mastering Up-Converter) doesn't answer
44	Convergence IC (STV2040) doesn't answer
45	Defect "Video Module" is detected
46	"Default" NVRAM of DCU doesn't answer
47	Test Pattern chip of DCU defect
48	Test Pattern NVRAM convergence chip defect
49	Convergence module doesn't answer anymore
51	PIP Module doesn't answer
52	The Teletext module is not conform.

FITING INSTRUCTION CRT - MONTAGE DES TUBES CATHODIQUES - MONTAGEANLEITUNG AUSTAUSCH DER BILDRÖHRE - ISTRUZIONI PER IL MONTAGGIOSOSTITUZIONE DEL TUBO - INSTRUCCIONES DE MONTAJE SUSTITUCION DEL TUBO

GB

1. Remove the three securing screws from the optics and electronic housing assembly, disconnect the loudspeaker and keypad cables and remove the housing assembly.
2. Remove four upper plastic cover securing screws and carefully lift off the plastic cover.
3. Remove the four lens torx securing screws (Fig. 1) and carefully remove the lens assembly (note the orientation of the lens with respect to the tube). If you are replacing more than one tube, please ensure that the lens assembly fitted to the original tube is fitted to the replacement tube, this is necessary in order to avoid time consuming optical readjustments.
4. Carefully remove the flexiboard BSVM coil fixed to the neck of the tube (Fig. 3).
5. Loosen the CRT PCB clamping screw A (Fig. 2) and carefully remove the CRT printed circuit board and BSVM coil.
6. Loosen the deflection yoke securing screw B (Fig. 2) so that they can be slid along the neck of the tube. Do not disconnect the deflection yoke cables.
7. Remove the four tube sub-assembly (Tube ASY Screws) torx securing screws.
8. Unplug the tube HV cable from the HV terminal block by turning the cable flush with the terminal block and pull at the same time. Repeat several times if necessary.
9. Gently slide the tube out its deflection yoke and the housing unit.
10. Re-assemble by performing these steps in the reverse order.
11. If the terminal block HV connection was damaged during disassembly, simply trim the end of the lead and remove 4mm of the insulation material. Insert it by gently pressing it into the terminal block duct.

ATTENTION:

.The replacement tube is not supplied with the deflection yoke or lens assembly. If they are not damaged, they do not need to be replaced with the tube.

. After temporally installing the deflection yoke, reposition and centre the flexiboard BVSM coil on the neck of the tube (see Fig. 4) and secure to the neck of the tube with adhesive tape. The BSVM coil connection cable should exit on the same side as the deflection yoke securing screws B.

. After replacing one tube, position the horizontal deflection yoke as described on page 17-20 of this service manual. If more than one tube is being replaced, please refer to the note on page 35 of this service manual before replacing the second tube.

D

1. Entfernen Sie die drei Befestigunsschrauben der Projektoreinheit ("Kitbox"). Ziehen Sie die Kabel zu den Lautsprechern und zu den Bedienteilen ab.Die Kitbox kann dann vollständig aus dem Gehäuse gezogen werden
2. Entfernen Sie die vier Befestigungsschrauben der oberen Kunststoffabdeckung der Kitbox. Heben Sie die Abdeckung herunter.
3. Entfernen Sie die vier Torx-Befestigunsschrauben (siehe Abb.1) der Linseneinheit und heben die Einheit heraus. Notieren Sie sich die Ausrichtung der Linseneinheit und,wenn mehrere Projektionsröhren getauscht werden, auch die Farbe. Dieses erspart Ihnen später einen zeitraubenden Abgleich der optischen Systeme.
4. Lösen Sie vorsichtig die auf dem Röhrenhals befestigte Folien- (Flexiboard-) Spule für BSVM.
5. Lösen Sie die Schraube A (Abb.2) der Bildrohrplatten-halterung. Entfernen Sie vorsichtig die Bildrohrplatte und die BSVM Folienspule.
6. Lösen Sie Sicherungsschraube (Abb.2) der Ablenkeinheit so,daß die Einheit auf dem Röhrenhals hin-und hergeschoben werden kann. Entfernen Sie bitte nicht die Anschlußdrähte der Anlenkspulen.
7. Entfernen Sie die vier Torxschrauben der Bildrohrbefestigung (Abb.2).
8. Ziehen Sie das Hochspannungskabel mit der Anschlußhülse unter gleichzeitiger Drehung aus dem Hochspannungsverteiler.
9. Eben Sie die Röhreneinheit (Röhre mit Kopler) vorsichtig aus der Ablenkeinheit und der Optikhalterung der Kitbox.
10. Der Einbau der neuen Projektionsröhreneinheit erfolgt in umgekehrter Reihenfolge.
11 Falls das Anschlußstück des Hochspannungskabels beim Ausbauen beschädigt wurde, entfernen Sie 4mm der Isolierung des Kabels und drücken Sie das Kabel unter leichten Druck in den Anschlußstuzen des Hochspannungsverteilers.

ACHTUNG :

.Die Linseneneinheit und die Ablenkeinheit sind nicht im Lieferumfang der ersatzröhre.Wenn sie nicht defekt sind, müssen sie nicht mit der Röhre ausgetauscht werden

.Nach dem Aufsetzen der Ablenkeinheit muß die BSVM-Folienspule wie in Abb.4 gezeigt ausgerichtet werden.Die Anschlußkabel sollten sich auf der gleichen Seite wie die Sicherungsschraube B der Ablenkeinheit befinden.Befestigen Sie die Spule mit Klebeband.

.Nach dem Ersetzen der Röhre richten Sie die Ablenkeinheit wie auf S.17-20 dieses Service Manuals beschrieben aus. Wenn mehr als eine Röhre ausgetauscht werden soll, folgen Sie bitte der Abgleichanleitung auf S.35 ehe sie die zweite Röhre ersetzten.

F

1. Retirer les trois vis de fixation du caisson (optique / bloc électronique), déconnecter les cables de haut-parleurs et clavier et déposer le caisson pour avoir accès librement aux tubes.
2. Dévisser et retirer le couvercle supérieur plastique.
3. Retirer la lentille avec les vis "Torx" (Fig.1). Si vous changez plus d'un tube, identifiez la couleur du tube pour utiliser la lentille dans la même position, cela afin d'éviter un réajustement optique.
4. Dévisser la vis A (Fig.2) du collier de maintien au tube de la CRT et retirer cette dernière.
5. Retirer soigneusement le flexiboard (Self BSVM) collé sur le col du tube (Fig.3).
6. Dévisser le déviateur de façon à pouvoir le glisser le long du col du tube. Ne pas déconnecter les câbles du déviateur.
7. Dévisser le sous-ensemble du tube (tube + coupleur) (vis "Torx").
8. Retirer du répartiteur HT le cable HT du tube à changer. Pour celà tourner le cable au ras du répartiteur en tirant. Recommencer plusieurs fois si nécessaire.
9. Retirer le sous-ensemble du tube en glissant le col du tube hors du bâti.
10. Procéder dans l'ordre inverse au remontage.
11. Préparer l'extrémité du cable HT si il a été endommagé au démontage en dénudant 4mm. Insérer le en forçant doucement dans la cheminée du répartiteur.

ATTENTION :

. Le déviateur et la lentille ne sont pas des parties du sous-ensemble du tube. S'ils ne sont pas endommagés, ils ne doivent pas être changés avec le tube.

. Aprés la mise en place du déviateur repositionner et centrer le flexiboard (Self BSVM) sur le col du tube comme indiqué en Fig.4. Le cable de connexion doit sortir côté vis de maintien du déviateur. Fixer la bobine avec l'adhésif.

. Après remplacement d'un tube procéder au positionnement du déflecteur horizontal (p.15-20) . En cas de changement de plusieurs tubes, avant de remplacer le deuxième tube suivre le processus de réglage décrit en page 35.

I

1. Rimuovere le viti di fissaggio dal contenitore (blocco ottico/ elettronico). Scollegare i cavi di altoparlanti e tastiera e deporre il contenitore per avere libero accesso ai tubi.
2. Svitare e rimuovere il coperchio superiore in plastica.
3. Rimuovere le lenti con le viti « Torx » (Illustrazione1). Se si sostituisce più di un tubo, identificare il colore del tubo per utilizzare le lenti nella medesima posizione, al fine di evitare il riallineamento ottico.
4. Svitare la vite A (Illustrazione 2) dell'anello di fissaggio sul tubo a raggi catodici e ritirarla da quest'ultimo.
5. Rimuovere accuratamente la flexiboard (bobina ad autoinduzione BSVM) incollata sul collo del tubo (Illustrazione3).
6. Svitare il giogo di deviazione magnetica in modo che scorra lungo il collo del tubo. Non scollegare i cavi dal giogo di deviazione magnetica.
7. Svitare il sottoinsieme del tubo (tubo + giunto) (viti « Torx »).
8. Rimuovere il cavo HT del tubo da sostituire dal partitore HT. Talle operazione si esegue girando e tirando il cavo dal partitore. Se necessario, ripetere più volte l'operazione.
9. Rimuovere il sottoinsieme del tubo, facendo scorrere il collo del tubo al di fuori dell'alloggiamento.
10 Procedere al rimontaggio nell'ordine inverso.
11. Se il cavo HT è stato danneggiato, preparare l'estremità allo smontaggio scoprendo 4mm di cavo. Inserire il cavo premendolo delicatamente nell'intelaiatura del partitore.

ATTENZIONE :

.Il giogo di deviazione magnetica e le lenti non fanno parte del sottoinsieme del tubo. Se non sono danneggiati, non devono essere sostituiti con il tubo.

.Dopo l'installazione del giogo di deviazione magnetica, riposizionare e centrare la flexiboard (bobina ad autoinduzione BSVM) sul collo del tubo ,come indicato nell'illustrazione 4. Il cavo di collegamento deve uscire dal lato della vite di fissaggio del giogo di deviazione magnetica. Fissare la bobina con adesivo.

. Dopo la sostizione di un tubo procedere al posizionamento del deflettore orizzontale (pag. 15-20). In caso vengano sostituiti più tubi, seguire il processo di regolazione descritto a pag.35 prima di sostituire il secondo tubo.

E

1. Retire los tres tornillos de fijación de la cubierta (del bloque óptico/electrónico), desconecte el altavoz y los cables del teclado y retire la cubierta para acceder libremente a los tubos.
2. Desatornille y retire la cubierta superior de plástico.
3 .Retire la lente con los tornillos Torx (dibujo 1). Si va a cambiar más de un tubo, identifique su color para usar la lente en la misma posición, de modo que no sea necesario un reajuste óptico.
4. Afloje el tornillo A (dibujo 2) de la abrazadera del CRT y retire esta última.
5. Retire con cuidado el flexiboard (bobina de autoinducción BSVM) fijado al cuello del tubo (dibujo 3).
6. Desatornille el desviador de manera que pueda deslizarlo a lo largo del cuello del tubo. No desconecte los cables del desviador.
7. Desatornille el subconjunto del tubo (tubo + acoplador) (tornillos Torx).
8. Desconecte el cable de MAT del tubo que va a cambiar del bloque del repartidor de MAT. Para ello, gire el cable a ras del repartidor y tire al mismo tiempo. Repítalo varias veces si es necesario.
9. Retire el subconjunto del tubo deslizando el cuello fuera de la cubierta.
10.Para montarlo de nuevo, siga el mismo procedimiento en orden inverso.
11.Para preparar el extremo del cable de MAT si se ha dañado al desmontarlo, pele 4 mm. Introdúzcalo suavemente empujando hacia dentro del conducto del bloque del repartidor.

ATENCIÓN :

.El desviador y la lente no son partes del subconjunto del tubo. Si no están dañados, no deben cambiarse con el tubo.

.Después de instalar el desviador, coloque y centre el flexiboard (bobina de autoinducción BVSM) en el cuello del tubo, como se indica en el dibujo 4. El cable de conexión debe salir del lado del tornillo de montaje del desviador. Fije la bobina con adhesivo.

.Después de cambiar un tubo, coloque el desviador horizontal (p. 15-20). Si cambia varios tubos, siga el proceso de ajuste descrito en la página 35 antes de cambiar el segundo tubo..

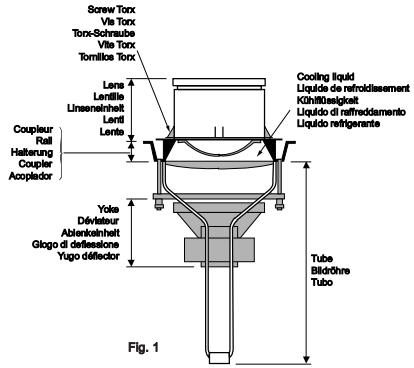


Fig. 1

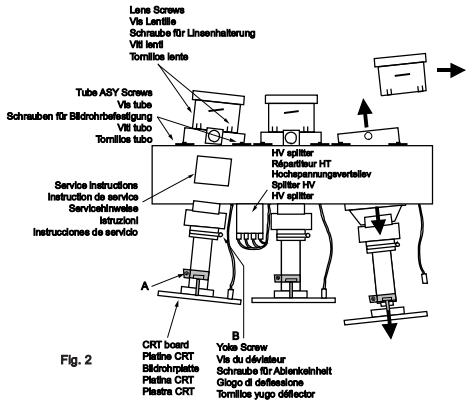


Fig. 2

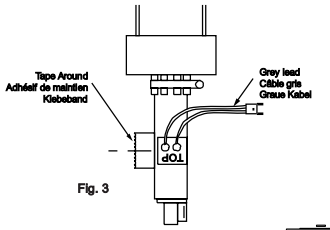


Fig. 3

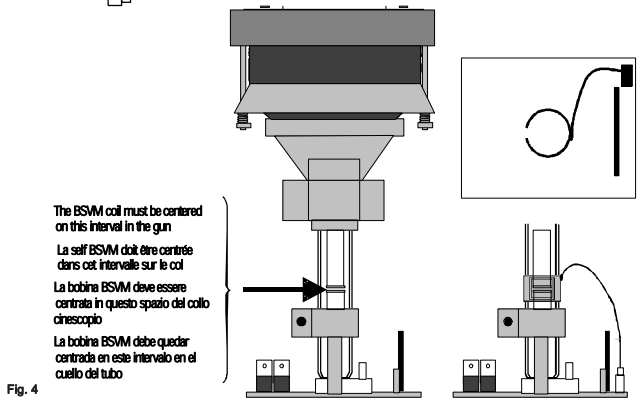
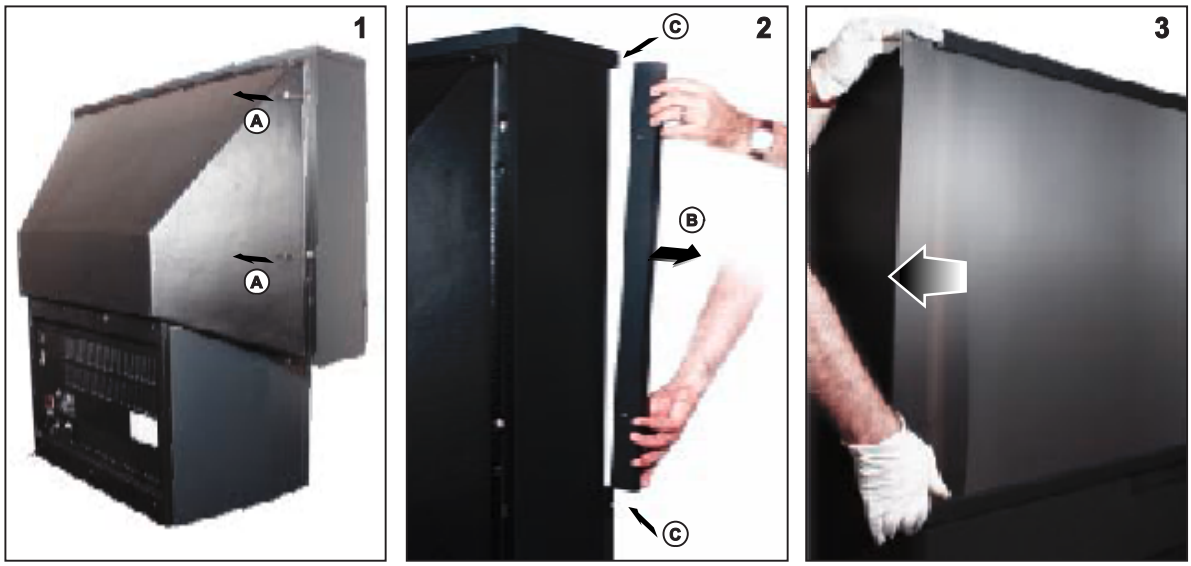

The BSVM coil must be centered on this interval in the gun
La self BSVM doit être centrée dans cet intervalle sur le col
La bobina BSVM deve essere centrata in questo spazio del collo cinescopio
La bobina BSVM debe quedar centrada en este intervalo en el cuello del tubo

Fig. 4

SCREENS REMOVAL - DEPOSE DES ECRANS - AUSBAU DES BILDSCHIRMES - RIMOZIONE SCHERMI - RETIRADA DE LAS PANTALLAS



- Remove the two securing screws Ⓐ and the screens retaining rail Ⓑ. Next remove the two securing clamps Ⓒ.
- Remove both screens simultaneously to avoid scratching the plastic screens.

To prevent damage or leaving fingerprints on the screen we suggest the wearing of cotton gloves , these are available under Code **35088640.**

Please Note: Before refitting the new screen, remove the transit covers in order to correctly engage the two screens in the slot.

- Enlever les vis Ⓐ et dégager la règlette de maintien Ⓑ. Retirer les cales Ⓒ.
- Prendre les deux écrans simultanément et les glisser ensemble pour ne pas les rayer. Pour éviter toute empreinte sur l'écran nous suggérons de mettre des gants de coton, disponibles sous le code **35088640.**

Note: Pour le remontage retirer le cache arrière de l'appareil pour repositionner correctement les écrans dans leur rainure.

- Entfernen Sie die beiden Befestigungsschrauben Ⓐ und die Halteschiene Ⓑ. Entfernen Sie dann die Sicherungsklammern Ⓒ.
- Ziehen Sie die beiden Scheiben des Bildschirms, um Kratzer zu vermeiden, zusammen heraus.

Um Beschädigungen und Fingerabdrücke auf dem Bildschirm zu verhindern, tragen Sie möglichst Baumwollhandschuhe. Diese sind unter der Best.-Nr. **35088640** erhältlich.

ACHTUNG: Um die beiden Scheiben des Bildschirms bündig in die Führungsschienen zu bekommen, entfernen Sie vor dem Einbau den Transportschutz vom neuen Bildschirm.

- Rimuovere le due viti di sicurezza Ⓐ e la barra di fissaggio schermo Ⓑ e poi rimuovere i fissaggi di sicurezza Ⓒ.
- Togliere entrambi gli schermi contemporaneamente per evitare di danneggiare gli schermi di plastica.

Per non danneggiare lo schermo o lasciare impronte si consiglia l'uso di guanti di cotone, disponibili con il codice **35088640.**

NB: Rimuovere le guide per riposizionare correttamente lo schermo.

- Retirar los tornillos de seguridad Ⓐ y el listón de sujeción de las pantallas Ⓑ. A continuación retirar las dos fijaciones de seguridad Ⓒ.
- Retirar ambas pantallas simultaneamente para evitar que se arañen.

para evitar daños o huellas dactilares en la pantalla, se sugiere utilizar guantes de algodón (Código **35088640**).

Nota: Antes de colocar la nueva pantalla, retitar los protectores al objecto de acoplar correctamente las dos pantallas en la ranura.

GENERAL INFORMATION

METHODOLOGY

1 - SWITCHING "ON" THE TV :

- Observe the behaviour of the two-coloured LED: note the various stages and compare them with the normal cycle of events.
By watching this, the point at which the problem arises and the part of the circuit which needs to be investigated can be identified.

2 -TROUBLE SHOOTING PROCEDURE: LED BEHAVIOUR

In certain cases a flashing LED signifies the transmission of an error code message:

LED flashes : message transmission.

Count the flashes : coded into two bursts separated by a pause of 0.7 s and repeated several times.

See the error code table.

This data is more precise than LED colour changes, however, since various fault conditions generate the same error code the information signalled may be imcomplete.

Please Note :
In the service mode, it is possible to consult a record of the last error codes which have occurred in the television set.

3 - FAULT FINDING :

Operation stages 1 and 2: an oscilloscope test is carried out according to two separate processes.

a - The television set operates fully or partially
- Use LED message observation fault finding methods 1 and 2. See also the fault related to fault finding by symptom.

b - The television set goes into permanent or cyclical security mode
- Observe LED behaviour (flashing red, stable orange followed by flashing, etc.).
Select the relevant box in the column (LED behaviour fault finding).

INFORMATION

The ICC19 television will partially operate without the DVT, SOUND, CRT, CHROMA (50 Hz) and VM video (100 Hz) modules remoded.
This point may be useful if the video module causes the TV to switch to security mode.

See the television configuration table.

TROUBLESHOOTING RP C19

- All of the following tests must be carried out with the MAINS switched OFF.

Any operations carried out with the MAINS switched ON may lead to components being destroyed.

- Use isolating mains transformer.

DIGITAL CONVERGENCE UNIT CHECK

- IC should have correct +5V supply
- PWAT pin 26 of IK01 must be >+4V otherwise the IC is kept in reset.
- The + - 15V from the PS must be present and >13V
- H and V sync must be present pin nr. 22 and 55 of IK01
- at the pin REFO nr. 40 + 1V must be present.
- at the pins DABV, DAGV, DARV, nr.43, 44and 45 of IK01 +1V must be present
- at the pins DABH, DAGH, DARH nr.48, 49 and 50 of IK01 +1V must be present
- at the pin ECLK nr. 14 of IK01 a 8.5Mhz clock must be present

DIGITAL CONVERGENCE UNIT POWER SUPPLY TROUBLESHOOTING

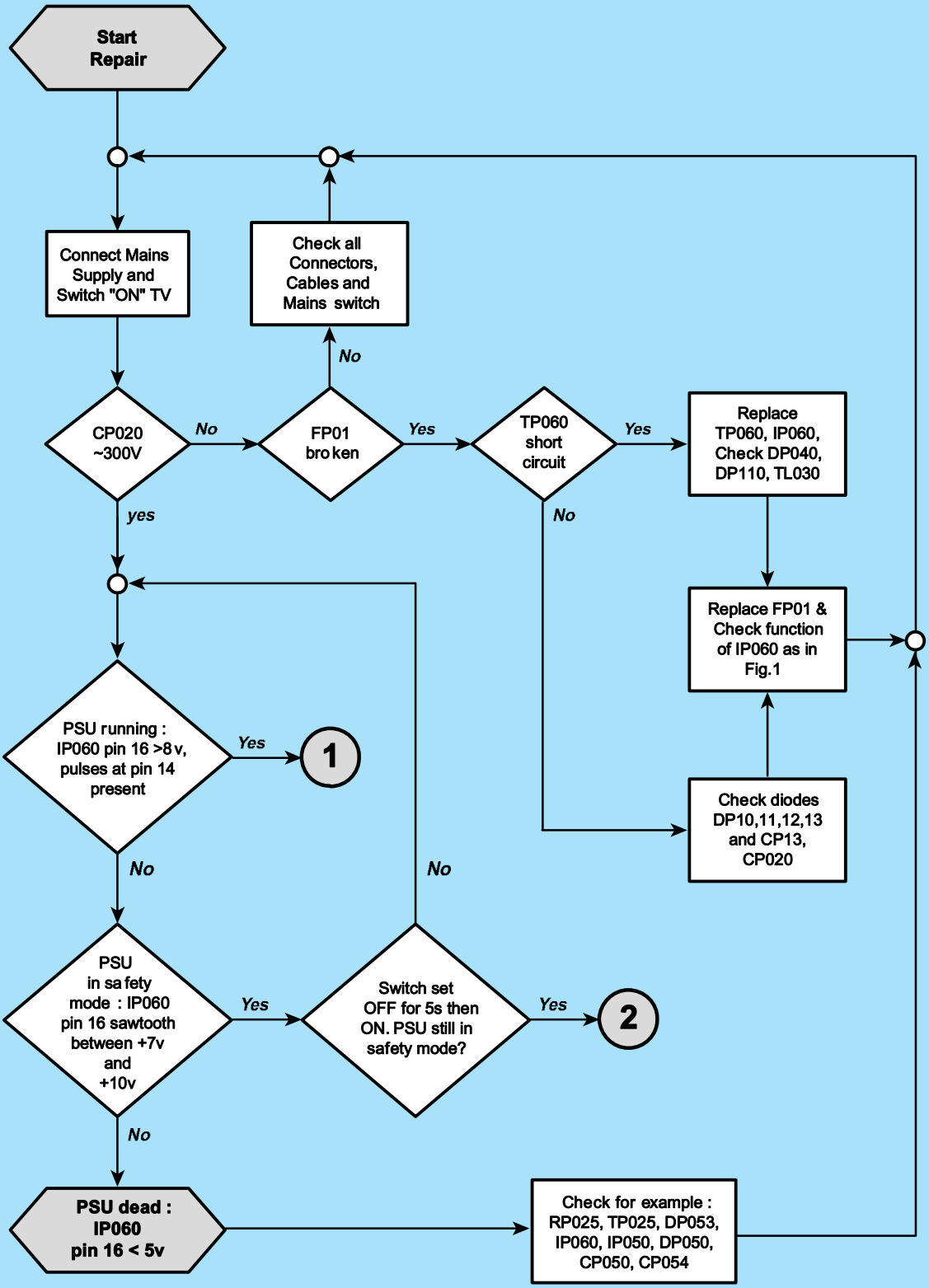
If you have not a convergence picture on the screen it's possible to check the convergence power supply for itself.

Do the following steps.

1. Switch off the mains
2. Remove the connection of BP260 between the DCU board and the convergence power supply
3. Connect a resistor of 270R/10W between +15V and -15V. For examplee cathode of DP267 and anode of DP265.
4. Make a short circuit between collector and emitter of TP 238.
5. Switch on the mains.

Name / Position	DC value / V
CP210	298.0
DP213	33.2
CP240	16.9
CP243	-25.4
CP233	15.3
Pin 5 of IP250	30.3
Pin 4 of IP250	0.0
Collector of TP233	0.9
CP268	14.9
CP266	-14.9
CP262	58.7
CP264	57.9
CP271	0.0
DCU_SAFE	0.0
RP271	0.0
Pin 1 of TP250	0.0
CP210	298.0

MAIN POWER SUPPLY CHECK


Start Repair
Connect Mains Supply and Switch "ON" TV
Check all Connectors, Cables and Mains switch
No
CP020 ~300V
No
FP01 broken
Yes
TP060 short circuit
Yes
Replace TP060, IP060, Check DP040, DP110, TL030
yes
No
Replace FP01 & Check function of IP060 as in Fig.1
PSU running : IP060 pin 16 >8v, pulses at pin 14 present
Yes
1
Check diodes DP10,11,12,13 and CP13, CP020
No
No
PSU in safety mode : IP060 pin 16 sawtooth between +7v and +10v
Yes
Switch set OFF for 5s then ON. PSU still in safety mode?
Yes
2
No
PSU dead : IP060 pin 16 < 5v
Check for example : RP025, TP025, DP053, IP060, IP050, DP050, CP050, CP054

Disconnect the TV from the mains. Make sure CP020 is discharged by shorting its + terminal to ground with a small value resistor..
Short the + terminals of CP020 and CP054 together and connect a 14 volts source to the mains plug as shown opposite.
Switch "ON" the 14 volts supply and check that output pulses appear at pin 14 of IP060.

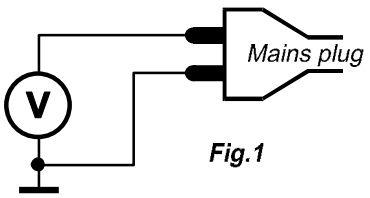


Fig.1

TECHNICAL INFORMATION

Chassis concerned : ICC19 16/9 & 4/3
(All sets with serial number starting with AK2).

Subject : Diode Split Transformer (DST)

Solution :
The following chassis have been equipped with 2 different versions of DST transformer, which are not interchangeable. Before ordering, identify the version needed, either by the serial number (2nd version) or by referring to the number printed on the DST (1st version) to be replace.

Chassis Identification	Screen Ratio	DST Part Numbers	
		1st Version	2nd Version
IC19 B5ND0740 00	4x3	10468070	10510870
IC19 B5ND0640 00	4x3	10468070	10510870
IC19 B5ND0240 00	4x3	10468070	10510870
IC19 B5P80240 00	16X9	10468160	10520330
IC19 B5P80740 00	16X9	10468160	10520330
IC19 B5P80640 00	16X9	10468160	10520330

LIST OF ABBREVIATIONS - LISTE DES ABREVIATIONS - ABKÜRZUNGEN
LISTA DELLE ABBREVIAZIONI - LISTA DE ABREVIACIONES

AV_R_ OUT	Audio Right-Out
AV_I_ OUT	Audio Left-Out
AV_R_ IN	Audio Right-In
AV_L_ IN	Audio Left-In
AV_C_ IN	Chroma-In
AV_Y_ IN	Video-In
AV_Y_ OUT	Video-Out
AV1_8	Pin-8 Detector
BEAM_INFO	BEAM CURRENT INFORMATION
BCL	BEAM CURRENT LIMITER
BG INFO	SWITCH BG
B_AV	BLUE SIGNAL FROM AV
BHD	BLUE HORIZONTAL DRIVE
BHR	BLUE HORIZONTAL REFERENCE
BIAG	BIAS GAMMA
B_TXT	BLUE SIGNAL OUTPUT (TEXT OR PIP)
BVD	BLUE VERTICAL DRIVE
BVR	BLUE VERTICAL REFERENCE
CRT_B	BLUE SIGNAL TO VIDEO AMPLIFIER
CRT_G	GREEN SIGNAL TO VIDEO AMPLIFIER
CRT_R	RED SIGNAL TO VIDEO AMPLIFIER
CVBS_SAT	SAT_VIDEO
DCR	DARK CURRENT SIGNAL OUTPUT
DEGAUSS	DEGAUSS SIGNAL
E.W_DRIVE	EAST - WEST DRIVE SIGNAL
EW_BACK	FEED BACK INFORMATION
FB_AV	FAST BLANK SIGNAL FROM AV SCART
FB DETEC	FAST BLANKING DETECT
FB_TXT	FAST BLANKING (TEXT OR PIP)
FIL1	HEATER GROUND
FIL2	HEATER (6.3V RMS)
FOC	FOCUS
FRAME _DR	VERTICAL DEFLECTION DRIVE SIGNAL
G_AV	GREEN SIGNAL FROM AV
GHD	GREEN HORIZONTAL DRIVE
GHR	GREEN HORIZONTAL REFERENCE
GND	GROUND (0V)
GVD	GREEN VERTICAL DRIVE
GVR	GREEN VERTICAL REFERENCE
G_TXT	GREEN SIGNAL OUTPUT (TEXT OR PIP)
G2	G2 SUPPLY (+900V)
HDEFL1/2	HORIZONTAL DEFLECTION
H-BLUE	BLUE HORIZONTAL DEFLECTION
HDFL	HORIZONTAL SYNC.
HDRV	HORIZONTAL DEFLECTION DRIVE SIGNAL
H-GREEN	GREEN HORIZONTAL DEFLECTION
H-RED	RED HORIZONTAL DEFLECTION
HTR1 / HTR2	HEATER OUTPUT FROM THE DST TO CRT
I CUT	CUT OFF CURRENT
IIC-CL-1	I2C CLOCK BUS 1
IIC-CL-2	I2C CLOCK BUS 2
IIC-DA-1	I2C DATA BUS 1
IIC-DA-2	I2C DATA BUS 2
IR	INFRARED RECEIVER
L1_INFO	STANDARD L BAND 1
LDFL	LINE LOCKED CLOCK 27 MHz
LDR	LED DISPLAY
MAIN _Y	Y FROM CHROMA DECODER
MAIN _U	U FROM CHROMA DECODER
MAIN _V	V FROM CHROMA DECODER
M-RES	MASTER RESET TO MICROPROCESSOR
MUTE	MUTES AUDIO AMPLFIERS
NMI	NON MASKABLE INTERRUPT (alternate function of Pin 55 STR092)
NORM	SWITCH POLARITY OF THE VIDEO SIGNAL TUNER
PLL-ON	ENABLE DEFLECTION PLL
PKS	SIGNAL FOR ABL CIRCUIT (STV2161/STV2162)
R_AV	RED SIGNAL FROM AV
RHD	RED HORIZONTAL DRIVE
RHR	RED HORIZONTAL REFERENCE
RJR	RED VERTICAL REFERENCE
RVD	RED VERTICAL DRIVE
R_TXT	RED SIGNAL OUTPUT (TEXT OR PIP)
SAFE	SAFETY INFORMATION FROM DEFLECTION
SMPS_IN	FEED BACK SIGNAL FOR POWER SUPPLY REGULATION (STV2161/2)
SSC	SUPERSAND CASTLE PULSE
TEMP_ABL	SIGNAL DST-TEMPERATURE SENSING CIRCUIT
T1_CVBS	COMPOSITE VIDEO BASEBAND FROM TUNER
U_SCART	SCART VOLTAGE
+USYS	SYSTEM VOLTAGE
+/- US	SOUND VOLTAGE
+UVERT	VERTICAL VOLTAGE
+UVFB	VERTICAL RETRACE VOLTAGE
+UVIDEO	VIDEO VOLTAGE FOR THE CRT BOARD
VA	VERTICAL REFERENCE OUT FROM TDA 9143
VDFL	VERTICAL SYNC.
VIDEO_1 / 2	VIDEO INPUT FROM MAIN PICTURE
V-BLUE	BLUE VERTICAL DEFLECTION
V-GREEN	GREEN VERTICAL DEFLECTION
V-RED	RED VERTICAL DEFLECTION
V-SYNC	VERTICAL SYNC.FOR TELETEXT MODULE
5 V	5V POWER SUPPLY
13 V	12V POWER SUPPLY
5 VSTBY	5V STAND BY
10 VSTBY	10V STAND BY

BEHAVIOUR OF ICC19 WITHOUT CERTAIN MODULES ARE FITTED OR REMOVED

CONFIGURATION				ERROR CODE	ALL VOLTAGES	Signal at pin 19 BV011	Signal at pin 2-4-6 BV001	picture
VM	AM-FM	DVT	CRT					
without	without	without	without (1)	17	ok (1)	no	no	no
with	without	without	without (1)	17	ok (1)	no	no	no
with	with	without	without (1)	39	ok (1)	no	no	no
with	with	with	without (1)	26	ok (1)	ok	no	no
with	without	with	with	17	ok	ok	ok	ok
with	with	without	with	39	ok	ok	ok	ok (2)
without	with	with	with	15	ok	noise	pulse 100Hz	no

(1) : If the CRT is not connected, the voltage across CL046 will increase up to 250V instead 202V, this is due to the lack of a discharge path. Before to reconnecting BL050 and BP110 it is **imperative to discharge** CL046 with a resitor (22k or 33k).

(2) : In this case, the picture will only be visible after 1mn.

OPERATION ENHANCEMENTS

ICC19 16/9 50 Hz CHASSIS
32WS88KE - 28WS78KE - 32WS83KP - 28WS73KD

- POWER SUPPLY SWITCHES TO SAFETY MODE DURING VCR OPERATING

Cause :
Missing synchronisation signal during 1 or 2 frames (bad quality video cassette)

Solution :
- Replace CL067 capacitor 100 nF 100V by 1µ 63V (Code 90568280)
- Add RL066 a melf resistor of 220k 5% 100mW (Code 10328700).

ICC19 50 Hz OR 100 Hz CHASSIS

* A PERMANENT RESIDUAL NOISE CAN BE HEARD FROM THE SPEAKER WHEN THE SET IS IN STANDBY MODE

- Change CP120 from 470 uF 35V to 330 uF 25V tocom 10448410.

* INTEGRATED CIRCUIT OPERATION PRECAUTIONS
. IN CASE OF FAILURE OF IC TDA8177F (CODE 10352880) IN POSITION IF001

WARNING
It is compulsory to use TDA8177F Tocom 10352880 designed for higher output current than TDA8177 Tocom 15053440 used in TX92.

In case of mistake the new IC would be immediately destroyed at switch on.

ICC19 100Hz CHASSIS STEREO OR DOLBY STEREO

▪MOIRE OR BLACK VERTICAL BAR ON THE SCREEN (IN VHF BAND 1)

(only applicable to Italy)

Cause :
Cross talk between power supply and tuner.

Solution :
- Replace the switch mode transformar LP020 by a new one having code :
- 10553820 (stéréo)
- 10553830 (dolby stéréo).

ICC19 100 Hz

▪TERRESTRIAL MAGNETIC FIELD

PICTURE ROTATION (MAINLY WITH 16/9 SETS - PROBLEM HIGHLIGHTED BY TELETEXT, SUBTITLE AT THE BOTTOM OF THE PICTURE)

Cause :
Depending of the orientation in terrestrial magnetic field.

Solution :
- Future 16/9 models will be equiped with (EFC) Earth field correction adjustable by software.
A kit EFC with manual adjustment is availaible for After Sales under reference 35059270. It includes module, coil, all necessary cables and mounting instructions.

Nota :
- New models EFC equiped.The models 16/9-100 Hz-28 or 32 inches, produced from week 98-11 (with serial number AK3025110 onwards) are now equiped with EFC and manual adjustments described above. It is necessary to remove the back cover to access the potentiometer.

FRAME DEFLECTION CIRCUIT CHECKS

⚠ All of the following tests must be carried out with the MAINS switched OFF.

Any operations carried out with the MAINS switched ON may lead to components being destroyed.

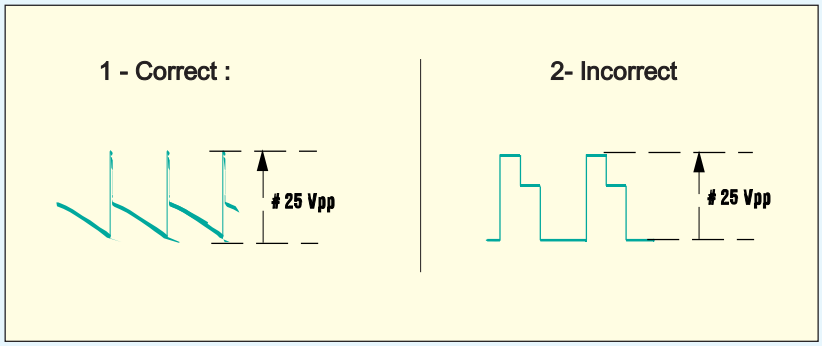
After replacing integrated circuit IF001:

Before switching power back on, it is recommended to carry out an initial test without the +UVFB voltage, because if the destruction of the component is linked to another faulty component, there is the risk of the new IF001 or other components being destroyed.

⚠ - Set mains switch to OFF.
- Unsolder pin 9 of transformer DST (LL008).

This configuration can be used to check the operation of the frame amplifier during the transient defined by normal operation of the protective circuit (1-2 seconds).
This is generally sufficient to check whether the normal frame scanning sawtooth voltage is correct during the scanning sweep.

TV ON : Examine the signal on point 5 of IF001 using an oscilloscope



If there is a fault, two states only may be observed in the place of the sawtooth:

- high at +Uvert voltage.
- low at earth.
with sudden tilting in the middle of the sweep.

Possible faults:

- Investigation in IF001-IV001 loop.
- Checks of RF024-RF023.
- New integrated circuit test: IV001 (STV2161/STV2162).

Check also :

- DL043 (risk of short-circuit) before carrying out the final test with pin 9 of DST resoldered.

LINE DEFLECTION CIRCUIT CHECKS

⚠ All of the following tests must be carried out with the MAINS switched OFF.

Any operations carried out with the MAINS switched ON may lead to components being destroyed.

After replacing line output transistor TL030, it is recommended that you carry out a preliminary tests to ensure that line scanning is functioning correctly.

For example, if line output transformer DST (LL008) is short circuit, TL030 will be destroyed again. To check the operation of line stage, the following configuration can be used. This will make it possible to find faults in this section without risk to any other components.

⚠ Set MAINS SWITCH to OFF.
CP170: (K/6)* short-circuited.
JL010: (M/8)* replaced by a test resistor R=100 Ohms.

Note: During these tests the power in the test resistor R will be approximately 33 W.
Using a RP022 type resistor only allows limited operation (one minute maximum) this should be long enough to check a few of the line output stage secondary voltages. For longer operation, a higher-power resistor should be used.

TV ON: check the following voltages :

U Syst :	50 Hz 131V	50Hz 132	50Hz 137V	100Hz 134V	100 Hz 137V	100 Hz 140V
Usyst (P/5)* (V+/-5V)	131	132	137	134	137	139.9
U vert / CP130 (P/4)* (V)	26	25.5	25.5	22.6	22.4	22.7
+Us / -Us (L/5-4)* (V)	15	12.2	13	18.6	16.8	13.5
7V / CP140 (J/3-4)* (V)	6.6	6.6	6.6	5.8	5.9	5.5
10V SBY/ K DP133 (N/5)* (V)	11.3	11.2	11.2	10.9	11.3	11
Vcc1 / 44-IV001 (J/7)* (V)	7.9	7.9	7.9	7.9	7.9	8
UVFB / K DL043 (K/8)* (V)	52.2	52.4	52.5	52.7	54.7	40.9
13V / CL042 (J/8)* (V)	11.6	11.6	11.6	11.2	11	9.8
200V / CL046 (P/6)* (V)	188.4	188	188	122.7 (**)	119.4 (**)	182
5V / CP143 (H/3)* (V)	5	5	5	5	5	5

(*) Components location reference
(**) With several new version of the DST (LL008) the (U syst - 1V) voltage appears at this point during the test mode or when the TV is placed in the Standby mode.
The « Family » table below shows the relation between the 200V and the DST/Tube configuration.

Family	Tube	DST
100Hz 134V	A66EGW 48X322	10460360
	W66EGV023X122	10468160 (*)
	W76EGV023X122	10468160
	W76EGV023X122	10520330 (*)
	W76EGX023X122	10520330 (*)
	W76EGX023X122	10576740 (*)
	A66EHJ 48X 12	10551170 (*)
100Hz 137V	A66EGW 48X322	10468070
	A66EGW 83X122	10510870 (*)
	A59EGD048X322	10468070
	A68EGD038X322	10468070
	A68EGD038X322	10510870 (*)
	A68EGV038X322	10551150 (*)
	A80AJA 16X120	10510870 (*)
	A80EJA 16X122	10510870 (*)
	A90AFX 16X120	10510870 (*)
100Hz 140V (PANORAMA)	W66EGV023X122	10576740 (*)
	W76EGV023X122	10576740 (*)
	W76EGX023X878	10576740 (*)
100Hz 140V (XF)	W66LPQ356X99	10647440 (*)
100Hz 140V (XF)	W76LPF350X97	10647440 (*)

Family	Tube	DST
RP- 4/3 134V	4/3 46" - 52"	10521310 (*)
RP-16/9 134V	16/9 52"	10641600 (*)

Family	Tube	DST
50Hz 131V	A59EGD048X300	10517720 (*)
	A68EGD038X300	10517720 (*)
	A80AEJ15X01	10517750 (*)
50Hz 132V	A66EHJ 13X 15	10517740 (*)
50Hz 137V	W66EGV023X015	10517750 (*)
	W66EGV023X115	10517750 (*)
	W76EGX023X115	10517750 (*)

(*) DST with 200V = Usyst + Forward from the DST

Other types: 200V = Flyback from the DST

MAIN BOARD

CHECK «STANDBY POWER SUPPLY »

⚠ All of the following tests must be carried out with the MAINS switched OFF.

Any operations carried out with the MAINS switched ON may lead to components being destroyed.

To check that the « standby » status is correct , the following test configuration can be used :

- Mains switched «OFF»
- Short circuit between the base of TV002 and the ground of CV002

↓

- Main switch «ON» : check the following voltages.

↓

U Syst :	50 Hz 131V	50Hz 132	50Hz 137V	100Hz 134V	100 Hz 137V	100 Hz 140V
Usyst (P/5)* (V+/-5V)	84.3	108	114	106	114.5	94.5
U vert / CP130 (P/4)* (V)	14.3	15.1	15	14.4	14.4	13.2
+Us / -Us (L/5-4)* (V)	9	7	8	11.5	10.2	7.3
7V / CP140 (J/3-4)* (V)	4.3	7.7	7	6.6	6.7	5.8
10V SBY/ K DP133 (N/5)* (V)	11.3	11.3	11.3	11	11.4	10.8
Vcc1 / 44-IV001 (J/7)* (V)	0.2	0.9	0.9	1.1	1.2	1
UVFB / K DL043 (K/8)* (V)	13.9	14.8	14.7	14.1	14.3	12.1
13V / CL042 (J/8)* (V)	0	0	0	0	0	0
200V / CL046 (P/6)* (V)	82.7	107	113	0 (**)	0 (**)	94
5V / CP143 (H/3)* (V)	0	0	0	0	0	0

(*) Components location

(**) With several new version of the DST (LL008) the (U syst - 1V) voltage appears at this point during the test mode or when the TV is placed in the standby mode. The « Family » table below shows DST (LL008) marked (*) number.

In this mode, you can control the stability of the voltage U syst. with an oscilloscope.

Family	Tube	DST
100Hz 134V	A66EGW 48X322	10460360
	W66EGV023X122	10468160 (*)
	W76EGV023X122	10468160
	W76EGV023X122	10520330 (*)
	W76EGX023X122	10520330 (*)
	W76EGX023X122	10576740 (*)
	A66EHJ 48X 12	10551170 (*)
100Hz 137V	A66EGW 48X322	10468070
	A66EGW 83X122	10510870 (*)
	A59EGD048X322	10468070
	A68EGD038X322	10468070
	A68EGD038X322	10510870 (*)
	A68EGV038X322	10551150 (*)
	A80AJA 16X120	10510870 (*)
	A80EJA 16X122	10510870 (*)
	A90AFX 16X120	10510870 (*)
100Hz 140V (PANORAMA)	W66EGV023X122	10576740 (*)
	W76EGV023X122	10576740 (*)
	W76EGX023X878	10576740 (*)
100Hz 140V (XF)	W66LPQ356X99	10647440 (*)
100Hz 140V (XF)	W76LPF350X97	10647440 (*)

Family	Tube	DST
RP- 4/3 134V	4/3 46" - 52"	10521310 (*)
RP-16/9 134V	16/9 52"	10641600 (*)

Family	Tube	DST
50Hz 131V	A59EGD048X300	10517720 (*)
	A68EGD038X300	10517720 (*)
	A80AEJ15X01	10517750 (*)
50Hz 132V	A66EHJ 13X 15	10517740 (*)
50Hz 137V	W66EGV023X015	10517750 (*)
	W66EGV023X115	10517750 (*)
	W76EGX023X115	10517750 (*)

(*) DST with 200V = Usyst. + Forward from the DST

Other type: 200V = Flyback from the DST

MAIN BOARD

SAFETY COMPONENTS CHECKS

It may be prudent to check two safety components associated with secondary voltages derived from the DST.

Component Part No	Location	Value	Possible Component Failure
RL043	K/8	2.2 R	Short circuit on VFB ? Check **DL043** See Frame Deflection Circuit Checks
ZL041	K/7	0 R	Short circuit on the +13V ? Check **DL041**

POWER SUPPLY CHECK AND FIND «PROT» FAILURE

⚠ All of the following tests must be carried out with the MAINS switched OFF.

Any operations carried out with the MAINS switched ON may lead to components being destroyed.

to analyse a «PROT» fault condition it is possible to use the following test configuration.
In this configuration the power supply will be working with its normal regulation loop, the deflection stage and any "PROT" information is disabled in order to locate the cause of the problem.

- MAINS switched «OFF»
- CP170 short-circuited (K/6)*
- JL010 removed (M/8)* or desolder Pin 6 of DST (LL08)
- Connect a R= 75 Ohms (4W) between +Vs and -Vs (L-M/4-5)*

↓

- Switch «ON» TV : Measure the following voltages.

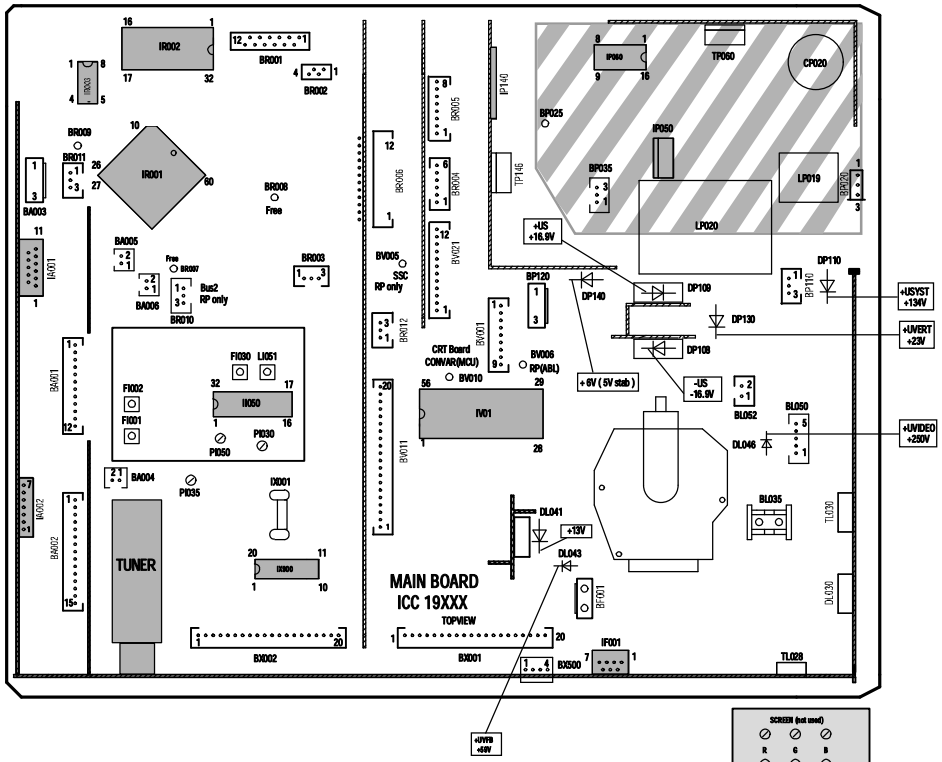
↓

U Syst :	50 Hz 131V	50Hz 132	50Hz 137V	100Hz 134V	100 Hz 137V	100 Hz 140V
Usyst (P/5)* (V+/-5V)	131.5	133	138	134.3	141	140
U vert / CP130 (P/4)* (V)	13	14.2	14.2	12.7	12.8	11.8
+Us / -Us (L/5-4)* (V)	6.4	6.4	6.4	8	8.3	6
7V / CP140 (J/3-4)* (V)	4.3	8.6	8.6	6.8	7.4	6.4
10V SBY/ K DP133 (N/5)* (V)	10.6	11.2	11.2	10.2	10.4	9.3
Vcc1 / 44-IV001 (J/7)* (V)	7.8	7.9	7.9	7.9	7.9	7.8
UVFB / K DL043 (K/8)* (V)	13.3	14.5	14.5	12.7	12.8	11.1
13V / CL042 (J/8)* (V)	0	0	0	0	0	0
200V / CL046 (P/6)* (V)	0	0	0	0	0	1.1
5V / CP143 (H/3)* (V)	0	0	0	0	0	0.2

(*) Components location

LOCATION OF CONTROLS - EMPLACEMENT DES REGLAGES - SERVICE LAGEPLAN - POSIZIONE REGOLATORI DI SERVIZIO - SITUACIÓN DE LOS AJUSTES

MAIN BOARD - PLATINE PRINCIPALE - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES



Do not disconnect modules when they are energized !
Repairs on power supply section are to be carried out only with isolating transformer.

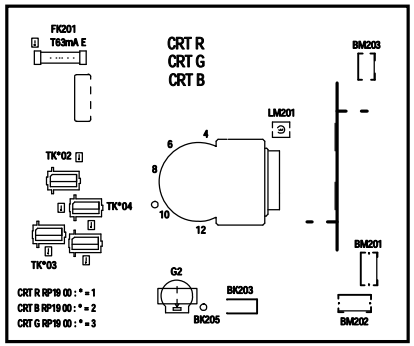
Ne pas retirer les modules lorsqu'ils sont sous tension.
N'effectuer les travaux de maintenance sur la partie reliée au secteur (Switch mode) qu'au travers d'un transformateur d'isolement.

Module nicht bei eingeschaltetem Gerät entfernen !
Servoarbeiten am Netzteil nur unter Verwendung eines Regeltrennrafos durchführen.

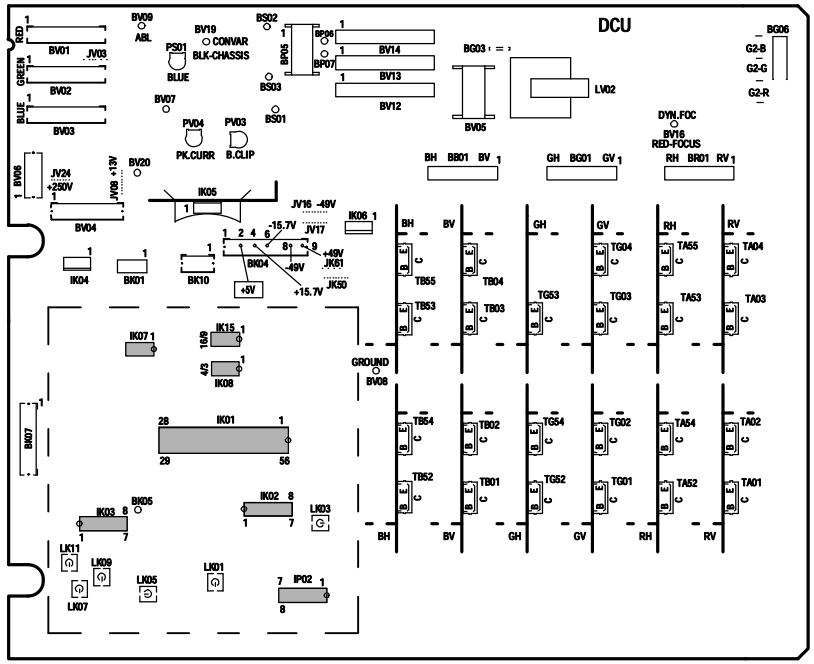
Non scollegare i moduli quando sono alimentati !
effettuare riparazioni sulla sezione alimentatore solo con transformatore isolante.

No desconectar los módulos cuando están activados !
Las reparaciones en la sección de alimentación de energía deben ser ejecutadas solamente con un transformador de separación.

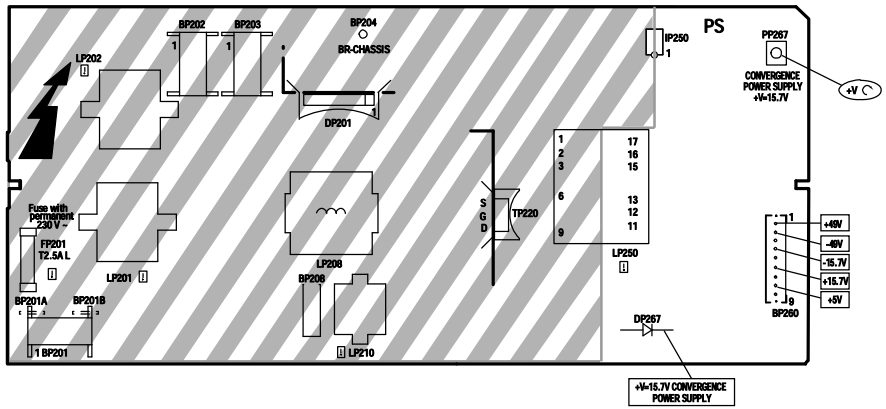
Part of Board connected to mains supply.
Partie du châssis reliée au secteur.
Primärseitiges Netzteils
Parte del pannello collegato alla rete di alimentazione
Parte del chasis conectada a la red



DIGITAL CONVERGENCE UNIT - PLATINE DE CONVERGENCE NUMERIQUE - DIGITALE KONVERGENZEINHEIT - UNITÀ DI CONVERGENZA DIGITALE - UNIDAD DE CONVERGENCIA DIGITAL



DIGITAL CONVERGENCE UNIT POWER SUPPLY - ALIMENTATION PLATINE DE CONVERGENCE NUMERIQUE - NETZTEIL KONVERGENZEINHEIT - ALIMENTAZIONE UNITÀ DI CONVERGENZA DIGITALE- ALIMENTACIÓN UNIDAD DE CONVERGENCIA DIGITAL



ADJUSTMENTS - REGLAGES - EINSTELLUNGEN - REGOLAZIONE - AJUSTES

U tyn	SERVICE MODE	Standard TV - Settings : ☼=50% ◑+ ◑ = 50% TV to AV1 : Black/red pattern	DP 110	TUNE MARK / DESCRIPTION / Line Inverse / Lines BP =62 / 425-62° / 62 BP =106 / 169-62° / 62 / PAL 625 / 12/61 +/-0.6V
PS Convergence Power Supply	PP87	Standard TV - Settings : ☼=50% ◑+ ◑ = 50%	DP 287	Adjust PP87 : V=62.7V +/- 0.1V
MAIN IF Alignment VCO Standard BG	P650	Switch set to standard BG IF Signal 38.9 MHz (BG) 20 mV TUNER 11 H01	R605 AFC (AT) 42 MV1	Adjust P650 / P654 for 2,0VDC +/-0.1V
MAIN VIDEO LEVEL Alignment	P650 P655	Standard Signal (BG 75) White test pattern TV out Antenna 3 mV Cvbs/Bn.	SCART Video output	Adjust P650 : standard BG Adjust P655 : standard L V = 0,7 Vpp (Black/white level)
H - VCO	SERVICE MODE	See Adjustment in Service Mode (GEOMETRY Menu)		
DCU Vertical Power Stage Zero	SERVICE MODE V POSITION	Standard TV - Settings : ☼=50% ◑+ ◑ = 50%	1 SP05 DCU Board SP07	DC Voltage - V to minimum. (+0 if possible)
RF / IF PART FEP 19100 PIP				
IF Alignment VCO Standard BG	P650	Switch set to standard BG IF Signal 38.9 MHz (BG) PIP TUNER 11 50 mV H0322	R677 AFC 33 5356	Adjust P650 for 2,0VDC +/-0.1V
TUNER AGC	P650	Signal 210.25 MHz TV out 3 mV Antenna Input PIP Tuner	11/H0322 IF output Tuner Spectrum Analiser	Adjust P650 : Maximum level Reduce level with P65 about 10dB.

RP C19
First issue 07 / 98

Updated 07 / 99

U G5 - DEFLECTION YOKE POSITION - CENTERING MAGNETS

Tv pin adjustments in the Red, Green and Blue G2 Controls, Convergence Yokes, or line Adjustment Magnets, proceed as follows.
- Using a window screwdriver, push the convergence lining section into deflection yoke (Fig.1).
- Carefully pry down the iron panel and expose the screen and screw caps.

Pour exécuter des réglages de G2 Rouge, Vert et Bleu , des déviateurs, ainsi que d'aimants d'ajustage de lignes, agissez en vous référant aux numéros ci-dessous.
- Utilisez un tournevis de taille adaptée pour faire levier sur la garniture de convergence (Fig.1).
- Retirez avec précaution le panneau de verre et exposez l'écran et les vis.

Um Zugang zu den G2-Elementen (Rot, Grün, Blau), Konvergenzjochen und Ablenkmagneten zu erhalten :
- schauen Sie mit einem passenden Schraubenzieher den Bereich der Konvergenzjoche - Fingerabdrücke in die eingegebene Richtung (Fig.1).
- ziehen Sie die Frontabdeckung vorsichtig nach unten und entfernen sie die eingegeben.

Per eseguire gli aggiustamenti del cinescopio G2 (Rosso, Verde e Blu), gioghi di convergenza e regolazione magneti, procedere come indicato.
con un opportuno cacciavite, premere leve in luogo la gamma convergenza come indicato nella figura (Fig.1).
Regolare il pannello con cura e rivelare lo schermo e le viti.
- Tirare verso il basso la gamma convergenza e rivelare lo schermo e le viti.

Fig. 1

CRT U G2 METHOD 1 Measument method	G2 potentiometer G2: Red : PV101 G2: Blue : PV201 G2: Green : PV301	Standard TV - Settings : ☼=50% ◑+ ◑ = 50% TV to AV1 : Black/red pattern	CRT Oscillo. Video Colorator TX105 (Indistor) CRT G1 RP 19.00	CRT 1 - Adjust VG2 CRT. R : V= 165V 2 - Repeat for : CRT G , CRT B.
METHOD 2 Cutoff voltage method SERVICE MODE	SERVICE MODE	Standard TV - Settings : ☼=50% ◑+ ◑ = 50% No test pattern (generated by internal test generator)	SERVICE MODE Call up VIDEO alignment menu Initially set R_Cut-off and G_Cut-off to 80H. Select G2 Alignment in Service Mode Adjust the 3 G2 Pot. on 3 CRT Boards for R=30, G=30, B=30 Select "Restore" in Service Mode and press "OK" to restore the out-off values.	

DEFLECTION YOKE POSITION	Yoke Déviateur	TV : AV1 Test pattern Standard TV - Settings : ☼=50% ◑+ ◑ = 50%	Horizontal line
GREEN DEFLECTION YOKE POSITION POSITION DÉVIATEUR VERT POSITION DER ABLENKEINHEIT FÜR GRÜN POSIZIONE DEL GIOGO DI DEVIAZIONE MAGNETICA VERDE - POSICIÓN DEL DEFLEXIÓN VERDE.	(G) - Loosen the deflection yoke securing screw S (See Fig.1 p.10). - Rotate the deflection yoke until the centre line of the grid pattern is horizontal. - Whilst push the deflection yoke hard up against the funnel/neck, tighten the securing screw S with a non-magnetic driver to a torque of 120 +/- 10cm.Newtons . (P) - Consider la vis de blocage S (Fig. 1 p.10). - Tourner le déviateur pour obtenir la ligne centrale de la mire la plus horizontale possible. - Pousser le déviateur contre l'ampoule, et serrer la vis de blocage S avec un outil non magnétique (120 +/- 10cm.Nds couple) . (Voir Fig. 1, p.10). (D) - Lösen Sie die Befestigungsschraube S der Ablenkjoche (Bilde Fig. 1 Seite 10). - Drehen Sie die Ablenkeinheit so, daß die Mittellinie des Gitters horizontal verläuft. - Drücken Sie die Joche fest in Richtung Röhrenkörper, wenn Sie die Schrauben mit einem nichtmagnetischen Werkzeug anziehen (120Nm -10 Nms Drehmoment) (Siehe Fig. 1 Seite 10). (I) - Ruotare la vite S del giogo magnetico (Vedere illustrazione a pag.10). - Ruotare il giogo di deviazione magnetica in modo che la linea centrale della griglia sia orizzontale. - Spingere completamente il giogo magnetico verso il bulbo del tubo e serrare la vite del giogo con un cacciavite non magnetico(coppia di serraggio 120 +/- 10cm.). Vedere illustrazione 1 a pag.10. (E) - Afloje el tornillo S del deviador (véase el dibujo 1, página 10). - Gire el deviador para que la línea central de la rejilla sea horizontal. - Empuje el deviador con fuerza en la dirección de la bombilla del tubo y apriete el tornillo del deviador con una herramienta no magnética (120+/-10 cm/K, véase par). Vea el dibujo,página 10.	- Rotate the Green deflection yoke. - Tourner le déviateur Vert. - Drehen Sie die Ablenkeinheit für "Grün" - Ruotare il giogo di deviazione magnetica Verde. - Gire el deviador verde.
RED AND BLUE DEFLECTION YOKE POSITION POSITION DÉVIATEUR ROUGE ET BLEU POSITION DER ABLENKEINHEITEN FÜR ROT UND BLAU - POSIZIONE DEL GIOGO DI DEVIAZIONE MAGNETICA ROSSO E BLU. - POSICIÓN DEL DEFLAVADOR ROJO Y AZUL	(SR) - Cover the Blue Lens. - Loosen the RED deflection yoke securing screw S and rotate the deflection yoke until the red horizontal centre line is parallel with the green line and tighten the securing screw. - Cover the RED lens and repeat the process for the BLUE deflection yoke. (P) - Couvrir l'objectif de teinte Bleu. - Tourner le déviateur Rouge (voir ci-dessus) pour avoir la ligne centrale horizontale Rouge parallèle à celle de la ligne verte. - Faire de même pour le Bleu. (D) - Drehen Sie die blaue Linse ab - Drehen Sie die "rote" Ablenkeinheit (wie oben beschrieben) so, daß die rote Mittellinie parallel zu der grünen verläuft. - Verfahren Sie als nach mit der "blauen" Einstellung. (I) - Copra la lenti blu - Ruotare il giogo di deviazione magnetica Rosso (vedere la procedura descritta in precedenza) in modo che la linea centrale Rossa sia parallela alla linea Verde. - Regolare la medesima procedura per il giogo di deviazione magnetica Blu. (E) - Cubra la lente azul - Gire el deviador rojo (véase el proceso anterior) para colocar la línea central horizontal roja paralela a la verde. - Siga el mismo proceso con la azul.	- Rotate the red and blue deflection yoke. - Tourner les déviateurs Rouge et Bleu. - Drehen Sie die Ablenkeinheiten für "Rot" und "Blau" - Ruotare il giogo di deviazione magnetica Rosso e Blu. - Gire el deviador rojo y azul.
MAGNETIC CENTERING OF GREEN RED BLUE POSITION CENTRAGE MAGNÉTIQUE DES IMAGES VERTE, ROUGE ET BLEUE MAGNETISCHE ZENTRIERUNG DES GRÜNEN, ROTEN UND BLAUEN BILDES	Centering magnets Aimants de réglages Zentrier-magnete Centrare i magnet. Imanes de centrado	TV : AV1 Test pattern Standard TV - Settings : ☼=50% ◑+ ◑ = 50% 1 - Set all magnets of convergence dials adjustments to centre. 1 - Positionner les baguettes de réglages de convergence sur la zone centrale. 1 - Stellen Sie alle Korrektursätze der Einheiten Konvergenzmodulator auf Mittelstellung. 1 - Regolare il centro tutte le barre guadate delle regolazioni di convergenza dello. 1. Fije todos los gráficos de barras de ajuste estático de convergencia en el centro. 2 - SERVICE MODE : GEOMETRY / H AMP.	- Center the green grid with the centering magnets. - Aller ajustements assign / H AMP in Service Mode. - Centrez la grille verte et bleu. - After the adjustment to the centering magnets with a "neutral" push. - Center la grille verte avec les aimants de réglages. - Après réglages réglages H AMP dans le Service mode. - Procéder de même pour la Bleu et le Rouge. - Pour les aimants avec une zone de contact ("aiguilles"). - Positionnez les petites flèche sur des Zentrierimagnete. - Nach diesen Einstellungen stellen Sie die Horizontal amplitude im Service-Mode ein. - Centrare la griglia verde e blu. - Dopo aver effettuato la regolazione dell'amplitudine nel Service mode. - Centre la rejilla verde con los imanes de centrado. - Después de realizar los ajustes, ajuste de nuevo H AMP en modo servicio. - Use a serie el mismo procedimiento para el rojo. - Después del ajuste, lleve los imanes de centrado con una pata de magnesio.

FOCUS	TV : AV1 Test pattern Standard TV - Settings : ☼=50% ◑+ ◑ = 50%		Sharp picture
MAIN FOCUS Red FOCUS Blue FOCUS Green FOCUS Rouge FOCUS Bleu FOCUS Vert FOKUS Rot FOKUS Blau FOKUS Grün	FOCUS Block Optical Focus Blue optique Optical Focus Optical Focus Optical Focus	(SR) - 1 - FOCUS Red - Cover both the Green and Blue lenses. - Adjust the focus of the red line with the anodised focus potentiometer on the Focus Block. 2 - FOCUS Green and Blue. - Repeat the procedure outlined above for both the green and blue lenses. - When satisfactory the Blue lens optimise the focus of the left-hand vertical lines. OPTICAL FOCUS Réglez la netteté dans l'obturateur à la fin de cet ajustement. - Loosen the focus small locking nlug nut (A) (see figure 1.) - Finely adjust the optical focus, compromising the focus between the centre and corners. - Tighten the small locking plug nut. (P) - 1 - FOCUS Rouge - Couvrir les lentes Vert et Bleu. - Ajuster la concentration des lignes avec le potentiomètre de Focus. FOCUS OPTIQUE Réglage effectué en dernier de réglage. - Desserrer les écrous de blocage (A) (voir figure ci-dessous). - Tourner la bobine pour obtenir un réglage qui compromis entre centre et coin. - Serrer les écrous de blocage du bloc optique. 2 - FOCUS Vert et Bleu ajuster la netteté de la première pour les lobes vert et bleu. Pour la concentration de l'optique bleu optimiser le réglage sur une ligne verticale à gauche de l'écran . (B) - 1 - FOKUS Rot - Decken Sie die grüne und die blaue Linse ab. - Stellen Sie den Fokus der roten Linien mit dem entsprechenden Fokuspotentiometer auf dem Fokusblock ein. OPTISCHER FOKUS Die Einstellung des optischen Fokus kommt nun die Röhrenecke, die Ecke, kompromissen vor. - Lösen Sie die kleinen Fixiermutter (A) an der Linse (siehe Abb. 1). - Stellen Sie vorsichtig den optischen Fokus ein; Suchen Sie einen Kompromiß im Fokus der Mitteilte und der Ecken. - Ziehen Sie die Fixiermutter wieder an 2 - FOKUS Grün und Blau Wiederholen Sie die oben beschriebenen Einstellungen für Grün und Blau. Bei der Einstellung des optischen Fokus Blau optimieren Sie die senkrechten Linien von linken Rändern. (I) - 1 - FUOCO Rosso - Copra la lenti verde e blu. - Regolare il fuoco delle linee rosse utilizzando il potenziometro sul blocco della messa a fuoco. FUOCO OTTICO Regolazione effettuata dal retro dell'apparecchio. - Allenti la vitella (A) (vedere illustrazione 1). - Mettere a punto il fuoco ottico mantenendolo compromesso tra centro e angoli. - Fissare la vitella del blocco ottico. 2 - FUOCO VERDE E blu - Ripetere l'intera procedura per la messa a fuoco verde e blu. - Per il fuoco ottico blu utilizzare la linea verticale sinistra. (E) - 1 - FOCO rojo - Cubra la lente verde y azul. - Ajuste el foco de las líneas rojas con el potenciómetro de los ejemplos en el bloque de foco. FOCO OPTICO El ajuste efectuado desde la parte trasera del aparato. - Afloje la tuerca de la tuerca (A) (ver fig.1) - Ajuste el enfoque óptico, manteniendo un compromiso entre el centro y las esquinas. - Fijar la tuerca con la tuerca. 2 - FOCO Green and blue Repeat the whole procedure for green and blue. For Blue optical focus optimise the vertical left line.

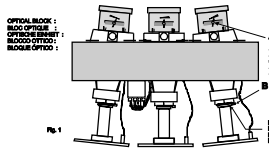


Fig. 1

DCU DIGITAL CONVERGENCE UNIT		☼=50% ◑=100% white=100% black=100%	Control CUT-OFF and DRIVE adjustment (Service Mode p.28) Contrôler les réglages de CUT-OFF et DRIVE (Mode Service p.28) Abgleich der CUT-OFF und DRIVE Einstellungen (siehe Service Mode S.28) Controllare la regolazione CUT-OFF e DRIVE (Vedere Service Mode a pag.28). Ajustes de CUT-OFF y DRIVE (modo de servicio, pag. 28)
Peak Limiter Bias Peak Limiter	P409 P404		• Turn P409 fully clockwise and P404 fully anticlockwise. • Slowly turn P404 clockwise until the voltage V=6.05V, this voltage cannot be reach then rotate P409 slightly anticlockwise and repeat adjustment of P404 until V=6.05V. • Now adjust P409 so that V=6.05V and readjust P404 for a final V=6.05 V.
	P401	1 SW20 DCU SW01 Oscillo.	1 - Jumper SW20 ---> SW1 • Record the voltage value V • Adjust la valeur de la tension V • Notieren Sie den Spannungswert V • Annotare il valore della tensione V • Anotar el valor de la tensión V 2 - Jumper SW20 ---> Initial • Adjust P401 to obtain V de Pin SV20. • Régler P401 pour obtenir V sur SV20 • Stellen Sie an SV20 mit dem Steller P401 die Spannung V ein. • Regolare P401 per ottenere V su pin SV20. • Ajuste P401 para obtener V en 1 de SV20..
		☼+◑+ ◑ = 50% AV1 : No signal	Also the adjustments were in 6302 to 6303. Aussi, réglage vous 6302 comme à 6303. Gleich wie die Anpassung wurden die 6302 zu 6303. Anche le regolazioni erano in 6302 a 6303. También ajustes en ojos de 6302 a 6303.
GEOMETRY adjustments	SERVICE MODE	See adjustment in Service Mode (GEOMETRY Menu) Siehe Abgleich bei Service Mode (GEOMETRY Menü)	
COLOUR adjustments		See adjustment in Service Mode (VIDEO Menu) Siehe Abgleich bei Service Mode (VIDEO Menü)	
CONVERGENCE KONVERGENZ CONVERGENZA CONVERGENCIA	SERVICE MODE	See adjustments in "Service Mode (Convergence Alignment Menu) ". Siehe Abgleich bei Service Mode (CONVERGENCE Menü)	

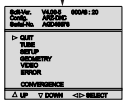
I - ENTREE/EXIT SERVICE MODE - EINTRITT/AUSTRITT SERVICE MODE - ENTRATA/USCITA SERVICE MODE - ENTRADA/SALIDA MODO SERVICIO

SERVICE MODE (GB)

1 ACCESSING THE SERVICE MODE

TV Control Panel Access

- Switch "Off" the mains supply to the TV .
- Whilst holding depressed the PR- and VOL- on the projector keyboard, switch "On" the mains supply to the TV.
- Once initialised, the Main Service Menu will appear on the screen of the TV.



Note :
In service mode :
- *The child lock function is re-initialised*
- *The lock function (PIN Number) is ignored,*
- *All Wake-up/Sleep timer settings are cleared.*
- *SCART socket pin 8 switching voltages is ignored.*
- *AV-Link WSS detection , EPG and Teletext functions are disabled.*
- *Automatic standby mode switching functions (no conditions) are disabled,*
- *Brightness, Colour and Contrast are set to factory settings.*
- *Sharpness settings are set to MID position.*
- *Contrast expander is set to low.*
- *Automatic Install mode is disabled.*
- *Format and Zoom are reset to factory defaults.*

2 TEMPORARY EXIT FROM SERVICE MODE

- Press the "Exit" button on the RCU.
- Pressing the "Men" button on the RCU will echo the customer menus.

- The Service Menu can be re-entered by pressing the "Stud" button on the RCU.

3 EXITING FROM SERVICE MODE

Remote Control | TV Control Panel | "On/Off" or "Standby" button

- Select the "QUIT" line of the "Main Service Menu.
- Press <>, <OK> or <> button
- RCU "Standby" button or switch "Off" mains supply
- Press <VOL+>button
- TV mode.

Values or adjustments not stored before exiting the service mode will not be saved in the NVM

MODE SERVICE (F)

1 ACCES AU MODE SERVICE

Accès avec la clavier du téléviseur

- Arrêter le TV sous la touche MIA.
- Tout en appuyant sur les touches PR - et VOL - , mettre le TV en service à l'aide de la touche MIA.
- Maintenir enfoncées les touches PR - et VOL -.
Le menu suivant apparît.

Note :
En mode service:
- *Le verrouillage parental est offsets (réinitialisé)*
- *La fonction de verrouillage (Pin number) est ignorée,*
- *La programmation des heures réveil/minuterie est annulée.*
- *Possibilité de passer en mode service avec commutation lente active.*
- *AV- Link , la détection WSS, l'EPG et le Vidéotexte ne sont pas validés.*
- *La fonction de stand-by automatique en cas d'absence de signal d'antenne n'est pas validée.*
- *Les valeurs de réglages saine sont affectées au contraste, à la couleur et à la lumière.*
- *Le contour est accru à sa valeur moyenne.*
- *L'expansion contraste est au niveau bas.*
- *Le mode d'installation et l'ambiance «Light saver» ne sont pas validés.*
- *Zoom et format ignorés.*

2 SORTIE TEMPORAIRE DU MODE SERVICE

- Utiliser la touche Exit de la télécommande.
- Le menu utilisateur peut être accessible via la touche «Menu».

- Pour entrer à nouveau dans le mode service utiliser la touche bleue.

3 SORTIE DEFINITIVE DU MODE SERVICE

télécommande | clavier du téléviseur | Inter MIA ou Stand-by

- Aller au point «QUIT» dans le menu principal du mode service.
- Appuyer sur <>, «OK» ou <>
- Appuyer sur <VOL+>
- Fonction Stand-by ou «off» par MIA
- Mode TV.

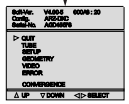
Les valeurs ou réglages non mémorisées avant la sortie ne seront pas inscrits en NVM.

SERVICE - MODE (D)

1 EINSTIEG IN DEN SERVICE MODE

Zugriff über die Tasten des Fernsehgeräts

- Fernsehgerät über die EIN/AUS - Taste ausschalten.
- Gleichzeitig die Tasten PR- und VOL- drücken und den TV über die EIN/AUS-Taste einschalten.
- Die Tasten PR- und VOL - gedrückt halten.



Anmerkung :
Im SERVICE MODE :
- *wird die Sperrfunktion (PIN-Nummer) ignoriert und die Kindersicherung gelöscht (initialisiert).*
- *werden alle Ein- und Ausschaltzeitgeber gelöscht.*
- *wird die SCART - Schaltspannung ignoriert,*
- *werden AV- Link WSS, EPG und Videotext gesperrt*
- *wird die Automatische Abschaltung bei fehlendem Antennensignal gesperrt,*
- *werden Kontrast, Farbe und Helligkeit auf Standardwerte gesetzt.*
- *wird die Bildschärfe auf Mittelstellung gesetzt.*
- *wird der Kontrast-Expander auf "gering..." gesetzt.*
- *wird der Installations-Modus gesperrt,*
- *wird das Standardformat bzw. der Standard-Zoom-Modus gewählt.*

2 VORÜBERGEHENDES VERLASSEN DES SERVICE MODE

- Auf der Fernbedienung EXIT drücken.
- Mit der Taste Menü gelangen Sie zum Übersichts menü.

- Mit der blauen Taste gelangen Sie zum Service-Menü .

3 ENDGÜLTIGES VERLASSEN DES SERVICE MODE

Fernbedienung | TV-Bedienfeld | EIN /Aus - Taste

- Wenn der Zeiger im Hauptmenü des Service-Modus auf BEENDEN steht
- Taste <>, «OK» oder <>drücken
- Taste «VOL+» drücken
- TV Modus

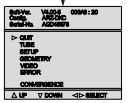
Werte und Einstellungen, die nicht vor dem Verlassen des Service-Modus gespeichert wurden, werden nicht in den Permanentspeicher übernommen

SERVICE - MODE (I)

1 ACCESSO AL SERVICE MODE

tramite i comandi del televisore

- Spegnere il TV mediante il pulsante ON/OFF.
- Premere i tasti PR- e VOL- accendendo il TV con il pulsante ON/OFF.
- Premere i pulsanti PR - e VOL -.



Note :
Nel service mode:
- *la funzione Blocco (Numero Pin) viene ignorata e la funzione Blocco Bambini è reinizializzata.*
- *l'orario la programmazione sveglia*
- *il pilotino 8 della scart viene ignorato.*
- *l'riconoscimento AV-Link WSS, EPG e televideo vengono disabilitati.*
- *Funzione automatica di standby, nel caso di mancanza del segnale d'antenna viene disabilitata.*
- *Contrasto, colore, luminosità : regolazioni di fabrica.*
- *Nitidezza: modo (nominale)*
- *Espansore contrasto troppo basso.*
- *Modo Install disabilitato,*
- *Formato default e zoom.*

2 USCITA TEMPORANEA DAL SERVICE MODE

- Premere Exit sul telecomando.
- Al menu di uso quotidiano si accede attraverso il pulsante Menu.

- È possibile rientrare nel Menu Field Service attraverso il pulsante Blue.

3 USCIRE DAL SERVICE MODE

telecomando | Pannello comando TV | Tasto on/off d

- Andare al punto QUIT nel Modo Field service del Menu principale
- Premere <>, «OK» o <>
- Premere «VOL+»
- Modo TV.

Valori e regolazioni non vengono memorizzati prima di uscire dal Modo service e non vengono scritti nell'NVM

MODO SERVICIO (E)

1 ACCESO AL MODO SERVICIO

Acceso pasó cuatro/TV

- Apague la TV con el botón MARCHA/PARADA.
- Pulse los botones PR - y VOL - y sin soltarlos,pulse la tecla MARCHA/PARADA.
- Libere los botones PR - y VOL - .

Note :
En modo servicio:
- *Se ignora la función de bloqueo y se inicializa la función 'cerradura niños'.*
- *Anula todas las horas programadas*
- *La patilla 8 del SCART es ignorada*
- *La detección VSS AV Link, EPG, y Teletxto son desactivados.*
- *El apagado automático en caso de ausencia de señal de antena es desactivado.*
- *El contraste,color y brillo son puestos a los valores de fábrica.*
- *la nitidez se pasita al punto medio.*
- *La expansión de contrast al nivel bajo*
- *Modo Instalación es desactivado.*
- *Zoom y formato ignorados.*

2 SALIDA TEMPORAL DEL MODO SERVICIO

- Pulse Exit en el mando a distancia
- Con el botón Menu puede acceder al menú de uso cotidiano.

- Puede entrar el Menú Servicio con el botón azul.

3 SALIDA DEL MODO SERVICIO

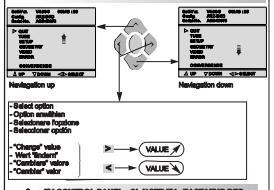
telecomando | Panel de control TV | Tecla on/off de

- Vaya al punto QUIT del menú principal de modo Servicio
- Pulse <>, «OK» o <>
- Pulse «VOL+»
- Modo TV.

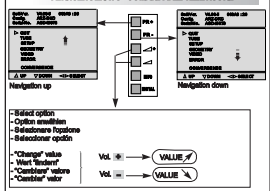
Los valores o ajustes no se guardan antes de salir del modo servicio y no se escriben en el NVM

II - NAVIGATION INSIDE THE SERVICE MODE - DEPLACEMENT DANS LE MODE SERVICE NAVIGATION IM SERVICE MODE - OPZIONI NEL SERVICE MODE - BUSQUEDA EN MODO SERVICIO

1 REMOTE CONTROL - TELECOMMANDE - FERNBEDIENUNG TELECOMANDO - MANDO A DISTANCIA



2 TV CONTROL PANEL - CLAVIER TV - TASTATUR DES FERNSEHGERÄTS - COMANDI DEL TELEVISORE -



Changing page - Changement de page
Seitenwechsel - Cambiare Pagina - Cambio de página

End of page
Fin de page
Am Seitenende
Fine della pagina
Fin de página

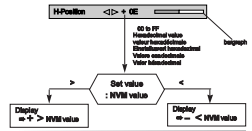
Beginning of Page
Début de page
Am Seitenanfang
Inizio della pagina
Comienzo de página

< ▽ >
Indicates a following page
Signifie qu'une page suit
Bedeutet, daß eine Seite folgt
Indica una pagina seguente
Indica una página siguiente

< △ >
Indicates a preceding page
Signifie qu'une page précède.
Bedeutet, daß eine Seite vorangeht
Indica una pagina precedente
Indica una página precedente

- The menu turns the page when the cursor reaches the arrow.
- Amener le curseur sur la figure représentant par < ▽ > ou < △ > pour passer à la page qui précède ou qui suit.
- Cursor nach < ▽ >, < △ > zum Seitenwechsel
- Il cursor su < ▽ >, < △ > cambia pagina.
- Cursor en < ▽ >, < △ > cambia las páginas

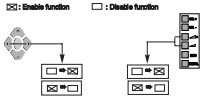
3 DISPLAYING THE VALUE OF THE SETTING - AFFICHAGE DES VALEURS - ANZEIGE DES EINSTELLWERTES VISUALIZZAZIONE DEL VALORE DELLA REGOLAZIONE - VISUALIZACION DEL VALOR DE AJUSTE



4 TOGGLE FUNCTIONS - VALIDATION DES FONCTIONS UMSCHALT FUNKTIONEN - FUNZIONI DI COMMUTAZIONE - FUNCION CONMUTACION

To enable a function check (tick) ☒ the box.
Pour valider une fonction cocher ☒ la case correspondante
Zum Implementieren einer Funktion das Kontrollkästchen ☒ ankreuzen (ankreuzen)
Per validare una funzione , (vistare) ☒ la casella
Para poner en funcionamiento una función verifique (señale) ☒ la casilla

☒ : Enable function □ : Disable function



5 STORING VALUES IN MEMORY - MEMORISATION DES VALEURS - SPEICHERN DER WERTE - MEMORIZZARE VALORI - VALORES ALMACENADOS EN LA MEMORIA

After setting, the values are stored in NVM.
Après réglages les valeurs sont mémorisées en NVM.
Nach den Abgleich nehmen die Werte im NVM gespeichert werden.
Dopo la regolazione i valori vengono memorizzati in NVM.
Después del ajuste, los valores son almacenados en NVM

The box □ becomes ☒
During alignment, values are temporarily stored in RAM.
En cours d'alignement les valeurs sont mémorisées temporairement en RAM
Während des Abgleiche werden die Werte vorübergehend im RAM gespeichert
Durante l'allineamento i valori vengono memorizzati provvisoriamente nella RAM
Durante el alineamiento, los valores son almacenados temporalmente en RAM

Store ⇒ Copies RAM values into NVM
Copie la valeur RAM en NVM
Kopieren der Werte von RAM nach NVM
Copiare i valori RAM in NVM
Copiar valores RAM en NVM

Restore ⇒ Copies all values from NVM into RAM.
Copie toutes les valeurs des données NVM en RAM
Kopiert alle NVM-Datenwerte in den RAM
Copiare tutti i valori da NVM nella RAM
Copia todos los valores de NVM a RAM

ROM Default ⇒ All the default values of a page in use are stored in RAM.
L'ensemble des valeurs par défaut d'une page courante est chargé en RAM.
Sämtliche Standardwerte der aktuellen Seite werden in das RAM gelesen.
Tutti i valori di default di una pagina in uso vengono memorizzati nella RAM
Todos los valores por defecto de la página en curso están almacenados en RAM.

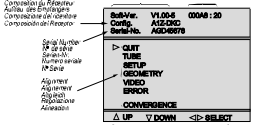
III - LITE-MENU FOR FIELD SERVICE MODE - MENUS DU MODE SERVICE - MENÜS IM SERVICE MODE - MENÚS DE SERVICIO

1 MAIN MENU - MENU PRINCIPAL - HAUPTMENÜ

Chassis Configuration code
Composition du Châssis
Aufbau des Chassis
Composizione del telaio
Composición del Chasis

Software Version
Version software
Versione software
Versión software
Versão software

Counter
Compteur
Zähler
Contatore
Contatore



Serial Number
N° de série
Serien-Nr.
Numero seriale
Nº Serie

Alignment
Alignment
Abgleich
Regolazione
Ajustes

Navigation inside the Service Mode
Navigation dans le Service Mode
Suche im Service Modi
Ricerca del Service Mode
Opciones del Modo Service

TV CONFIGURATION - CONFIGURATION DU TV - GERÄTEKONFIGURATION - CONFIGURAZIONE DEL TV - CONFIGURACIÓN DEL TV

Config. ASC-DXC

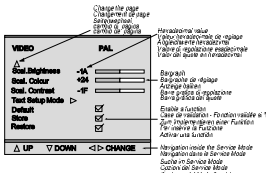
Character 1 : Tube type : «A» = 4/3 , «W» =16/9
Character 2 : Chassis type : «5» = 50Hz, «1»= 100 Hz
Character 3 : Zoom available : «Z»=yes, «-»=not
Character 4 : Ambient Sensor : «S»= detected, «-»= not
Character 5 : Dolby : «D»=detected, «-»= not
Character 6 : AV Link detected : «K»=IR link detected, «-»= not
Character 7 : Password mode: «C»= Password stored, «-»= not

TIME COUNTER - COMPTEUR DE TEMPS - ZÄHLER - CONTATORE - CONTADOR

The counter indicates the number of hours, 0 to 65530 the TV has been operating in hexadecimal notation.
Le compteur de temps indique le nombre d'heures de service du TV, il compte de 0 à 65535 heures. L'affichage est en hexadécimal.
Der Zähler zeigt an, wieviele Stunden der Fernseher in Betrieb war. Die Anzeige ist hexadezimal.
Il contatore indica i numero di ore di funzionamento del TV, Può contare da 0 a 65535. La visualizzazione è esadecimale.
El contador indica el número de horas de servicio de la TV, Cuenta de 0 a 65535 horas. El visualizador es hexadecimal.

2 SUBMENU - SOUS-MENU - UNTERMENÜ

Change the page
Changement de page
Seitenwechsel
Cambio de página
Cambio de página



Hexadecimal value
Valeur hexadécimale de réglage
Abgleichwerte hexadezimal
Valore di regolazione esadecimale
Valor del ajuste en hexadecimal

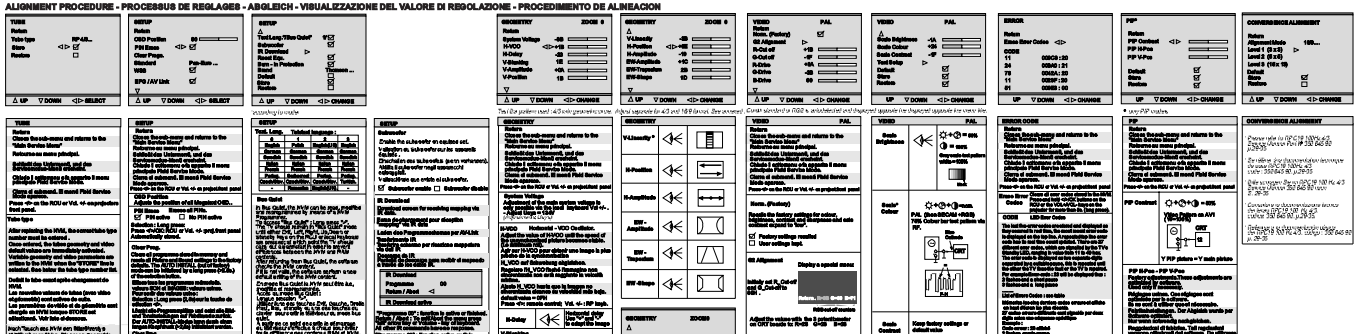
Bargraph
Barographe de réglage
Anzeige balken
Barra grafica di regolazione
Barra gráfica del ajuste

Enable a function
Case de validation - Fonction validée si "cochée"
Zum Implementieren einer Funktion
Per validare la funzione
Activar una función

Navigation inside the Service Mode
Navigation dans le Service Mode
Suche im Service Modi
Ricerca del Service Mode
Opciones del Modo Service

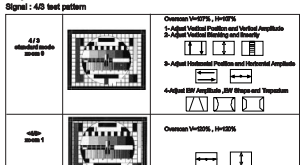
RP C19
First issue 07 / 98

ALIGNMENT PROCEDURE - PROCESSUS DE REGLAGES - ABGLEICH - VISUALIZZAZIONE DEL VALORE DI REGOLAZIONE - PROCEDIMIENTO DE ALINEACION

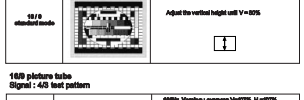


GEOMETRY MODE ALIGNMENT

4/3 picture tube
Signal : 4/3 test pattern



16/9 picture tube
Signal : 4/3 test pattern


16/9
standard mode
mode 5
16/9c Version: overscan V=107%, H=107%
1- Adjust Vertical Position and Vertical Amplitude
2- Adjust Vertical Blanking and Linearity
3- Adjust Horizontal Position and Horizontal Amplitude
4-Adjust SW Amplitude ,SW Shape and Trapezium

Note : GEOMETRY : V-Amplitude

Vertical Interlace - Entrelacement Vertical - Vertikal Interlace
Intelaciado Vertical - Entrelaçado vertical

- Check the vertical interlace*.
- Contrôler l'entrelacement vertical*.
- Überprüfen Sie den vertikale Interlacing (“Verschachtelung”) der Zeilen*.
- Controllare l'intelaciado verticale*.
- Comprueba El entrelaciado vertical*.

If the interlace is poor, adjust the VAMP, by 1/2 steps (+ or-) to achieve the best interlace.

Si l'entrelacement n'est pas correct agir sur V AMP de une ou deux valeurs pour obtenir un entrelacement correct.

Bei einer Paarigkeit der Zeilen verstellen Sie V AMP um 1 oder 2 Stufen (+ oder -)

Si el entrelazado no es bueno, mueva VAMP en 1 o 2 pasos (+ o -) para conseguir la mejor.

Se l'intelaciado non é bonos, correggere VAMP di 1 o 2 fasi (+/-) per ottenere l'intelaciado migliore.

* To check in 4:3 and in 16:9 - Contrôler en 4:3 et 16:9 - Kontrollieren Sie im 4:3 und im 16:9
Format .- Controlare nel formato 4:3 e 16:9. - Revisar en 4:3 y 16:9

ERROR CODES

GB

11 Int-Audio_MSP doesn't answer
12 Ext Audio MSP doesn't answer
13 Audio DSP doesn't answer
14 Video ID ST72181 doesn't answer
15 ID ST72181B extended slot
16 ID ST72181 / TDA9143 extended slot
17 Audio Interface (Ultra) extended slot
18 TDA9160 extended slot
19 TDA9150 extended slot (SCART-Switch)
1a Tuner CTI doesn't answer
20 I2C Bad data line held low
21 I2C Bad clock line held low
22 I2C Bad data line held low
23 I2C Bad clock line held low
24 I2C Bad clock line held low
25 Selected IF not available
26 Tube doesn't get warm in time
27 Defective deflection or tube problem (picture cannot be “enabled” fast)
28 Invalid memory configuration
31 PAL/ S bit
32 Audio standard does not exist
33 The PIP ADC (ST72185) doesn't answer
34 The HVM (SAA5295 clip doesn't answer
35 I2C 12V not available
36 Wrong data in NVRAM passed to the bus-handler
37 Unexpected reset on 50Hz (telenorm)
38 Wrong data in NVRAM (storage) passed to sdmanager via bushandler (bad/fix Read/Write failing?)
39 Bus 50Hz, poor Magnetic shielding!
3a Bus 50Hz, poor Magnetic shielding!
3b I2C Bus 2 data not available
3c I2C Bus 2 data clock not available
3d I2C Bus 2 data clock not available
3e I2C Bus 2 data clock not available
3f Wrong data in NVRAM (storage) passed to sdmanager via bushandler (bad/fix Read/Write failing?)
40 Defect “Video Blanking” is detected
41 Defect “Video Blanking” is detected
42 “Default” NVRAM of DOU doesn't answer
43 Test Pattern stop of DOU defect
44 Test Pattern NVRAM answer/pre-only defect
45 Convergence module doesn't answer/ response is wrong
46 PIP Module doesn't answer.
47 Test Pattern stop of DOU defect
48 Test Pattern NVRAM answer/pre-only defect
49 Convergence module doesn't answer/ response is wrong
4a PIP Module doesn't answer.
4b The Teletel module is not custom .

F

11 Processeur Audio MSP ne répond plus
12 Deuxième MSP ne répond plus (Zoller)
13 Audio DSP ne répond plus (Zoller)
14 Vidéo-ID ST72181 ne répond pas répond plus
15 ID ST72181B extended slot
16 ID ST72181 / TDA9143 extended slot
17 Audio Interface (Ultra) extended slot
18 TDA9160 extended slot
19 TDA9150 extended slot (SCART-Schalter)
1a Tuner CTI ne répond pas
20 I2C Bad data line held low
21 I2C Bad clock line held low
22 I2C Bad data line held low
23 I2C Bad clock line held low
24 I2C Bad clock line held low
25 Sélectivité IF non disponible
26 Tube ne chauffe pas à temps
27 Problème/tube de temps entre plus de trois fois (l'image ne peut pas être “allumée” rapidement)
28 Données mémoire incorrectes
31 PAL/ S bit
32 Audio standard does not exist
33 Le PIP ADC (ST72185) ne répond pas
34 Le HVM (SAA5295 clip ne répond pas
35 Le 12V non disponible
36 Les données incorrectes NVRAM passées au bus-handler
37 Reset inattendu sur 50Hz (télenorm)
38 Les données incorrectes NVRAM (stockage) passées au sdmanager via bushandler (bad/fix Read/Write failing?)
39 Bus 50Hz, poor Magnetic shielding!
3a Bus 50Hz, poor Magnetic shielding!
3b I2C Bus 2 data not available
3c I2C Bus 2 data clock not available
3d I2C Bus 2 data clock not available
3e I2C Bus 2 data clock not available
3f Les données incorrectes NVRAM (stockage) passées au sdmanager via bushandler (bad/fix Read/Write failing?)
40 Défaut “Video Blanking” est détecté
41 Défaut “Video Blanking” est détecté
42 “Défaut” NVRAM of DOU ne répond pas
43 Test Pattern stop of DOU défaut
44 Test Pattern NVRAM answer/pre-only défaut
45 Convergence module ne répond pas/ réponse incorrecte
46 PIP Module ne répond pas.
47 Test Pattern stop of DOU défaut
48 Test Pattern NVRAM answer/pre-only défaut
49 Convergence module ne répond pas/ réponse incorrecte
4a PIP Module ne répond pas.
4b Le module PIP ne répond pas
4c Le module Teletext ne répond pas

D

11 Audio MSP Prozessor antwortet nicht.
12 Zweiter Audio MSP Prozessor antwortet nicht (Zoller)
13 Audio DSP antwortet nicht (Zoller)
14 Video-ID ST72181 antwortet nicht.
15 ID ST72181B antwortet nicht
16 ID ST72181 / TDA9143 antwortet nicht
17 Audio Interface (Ultra) antwortet nicht
18 TDA9160 antwortet nicht
19 TDA9150 antwortet nicht (SCART-Schalter)
1a Tuner CTI antwortet nicht
20 I2C Bad data line held low
21 I2C Bad clock line held low
22 I2C Bad data line held low
23 I2C Bad clock line held low
24 I2C Bad clock line held low
25 Bandbreite IF nicht vorhanden
26 Röhre nicht rechtzeitig warm
27 Fehlerhaftes/ zu langes Röhre plus die Bild-Teile kann nicht “eingeschaltet” werden
28 Daten des Speichers ungültig
31 PAL/ S bit
32 Audio-Standard existiert nicht
33 Der PIP ADC (ST72185) antwortet nicht
34 Der HVM (SAA5295 clip antwortet nicht
35 +12V nicht vorhanden
36 Falsche Daten in NVRAM (Speicher) wurden an Bus-handler übergeben
37 Unerwarteter Reset an 50Hz (telenorm)
38 Falsche Daten in NVRAM (Speicher) wurden an sdmanager via bushandler übergeben (bad/fix Read/Write failing?)
39 Bus 50Hz, poor Magnetic shielding!
3a Bus 50Hz, poor Magnetic shielding!
3b I2C Bus 2 data not available
3c I2C Bus 2 data clock not available
3d I2C Bus 2 data clock not available
3e I2C Bus 2 data clock not available
3f Falsche Daten in NVRAM (Speicher) wurden an sdmanager via bushandler übergeben (bad/fix Read/Write failing?)
40 Defekt “Video Blanking” ist detektiert
41 Defekt “Video Blanking” ist detektiert
42 “Default” NVRAM of DOU antwortet nicht
43 Test Pattern stop of DOU Defekt
44 Test Pattern NVRAM answer/pre-only Defekt
45 Convergence module antwortet nicht/ Antwort ist falsch
46 PIP Module antwortet nicht.
47 Test Pattern stop of DOU Defekt
48 Test Pattern NVRAM answer/pre-only Defekt
49 Convergence module antwortet nicht/ Antwort ist falsch
4a PIP Module antwortet nicht.
4b Das Modul PIP hat einen Identfehler
4c Das Teletext-Modul antwortet nicht

I

11 Il primo IC Audio MSP non risponde
12 Il secondo IC Audio MSP non risponde
13 L'Integrato Audio DSP non risponde
14 L'IC ID ST72181 non risponde
15 L'IC ID ST72181B non risponde
16 Il secondo IC ID ST72181 non risponde
17 L'Interfaccia Audio non risponde
18 Il TDA9160 non risponde
19 Il TDA9150 non risponde
1a Il sintonizzatore CTI non risponde
20 Linea I2C Bus 2 bloccata bassa
21 Linea I2C Bus 2 bloccata bassa
22 Linea I2C Bus 2 bloccata bassa
23 Linea I2C Bus 2 bloccata bassa
24 Linea I2C Bus 2 bloccata bassa
25 La banda IF non è disponibile
26 Il tubo non si riscalda in tempo
27 Per il tubo, la deflessione la visione non può essere “accesa” rapidamente (tubo fuori specifiche?)
28 Dati errati nella NVRAM di Magnetizzazione
31 Il PAL/ S bit non risponde
32 Lo standard audio non esiste
33 Il PIP ADC non risponde
34 Il HVM (SAA5295 clip non risponde
35 Il +12V non è disponibile
36 Dati errati nella NVRAM passati al bus-handler
37 Reset inatteso a 50Hz (telenorm)
38 Dati errati nella NVRAM (storage) passati al sdmanager via bushandler (bad/fix Read/Write failing?)
39 Bus 50Hz, poor Magnetic shielding!
3a Bus 50Hz, poor Magnetic shielding!
3b I2C Bus 2 data not available
3c I2C Bus 2 data clock not available
3d I2C Bus 2 data clock not available
3e I2C Bus 2 data clock not available
3f Dati errati nella NVRAM (storage) passati al sdmanager via bushandler (bad/fix Read/Write failing?)
40 Il difetto “Video Blanking” è rilevato
41 Il difetto “Video Blanking” è rilevato
42 “Default” NVRAM of DOU non risponde
43 Test Pattern stop of DOU difetto
44 Test Pattern NVRAM answer/pre-only difetto
45 Il modulo convergenza non risponde
46 Il Modulo PIP non risponde
47 Il modulo Teletext non risponde

E

11 Procesador de audio MSP no responde
12 Segundo MSP no responde (Zoller)
13 Audio DSP no responde (Zoller)
14 Cb Integrado de vídeo ST72181 no responde
15 Cb Integrado vídeo ST72181B no responde
16 Segundo Cb Integrado de vídeo ST72181 no responde
17 Interfaz de audio (Ultra) no responde
18 TDA9160 no responde
19 TDA9150 no responde
1a Tuner CTI no responde
20 I2C Bus 2 línea de datos baja
21 I2C Bus 2 línea de datos baja
22 I2C Bus 2 línea de datos baja
23 I2C Bus 2 línea de datos baja
24 I2C Bus 2 línea de datos baja
25 No se dispone de la “IF sonintonizada”
26 El tubo tarda en calentarse
27 La proyección dada definitivamente mas de 3 veces (el proceso de encendido se llama “Proyección”) no conecta DRAM del Magnetoscopio defectuosa
28 Un Bus de 50Hz, poco aislado, pues no está disponible
31 El PAL/ S bit no responde
32 El estándar de audio no existe
33 La memoria no valida 2DACQS no responde
34 La memoria no valida SAA5295 no responde
35 No hay disponible +12V
36 Llegada de la NVRAM incorrecta
37 Reset inesperado a 50Hz (telenorm)
38 Llegada incorrecta de datos “Almacenamiento” (NVRAM) a sdmanager via bushandler (bad/fix Read/Write failing?)
39 Bus 50Hz, poco aislado, pues no está disponible
3a Bus 50Hz, poco aislado, pues no está disponible
3b I2C Bus 2 data not available
3c I2C Bus 2 data clock not available
3d I2C Bus 2 data clock not available
3e I2C Bus 2 data clock not available
3f Llegada incorrecta de datos “Almacenamiento” (NVRAM) a sdmanager via bushandler (bad/fix Read/Write failing?)
40 Defecto “Video Blanking” detectado
41 Defecto “Video Blanking” detectado
42 “Default” NVRAM of DOU no responde
43 Test Pattern stop of DOU defecto
44 Test Pattern NVRAM answer/pre-only defecto
45 Convergence module no responde/ respuesta incorrecta
46 Módulo PIP no responde
47 Módulo Teletexto no responde

GEOMETRIE / CONVERGENCE ADJUSTMENT - GEOMETRIE / REGLAGES DES CONVERGENCES / GEOMETRIE / KONVERGENZ ABGLEICH - GEOMETRIA / REGOLAZIONE CONVERGENZA - GEOMETRIA / AJUSTE DE CONVERGENCIA

ADJUSTMENTS LEVELS

For every point on the screen, each of the three beams has a specific correction possibility in both horizontal and vertical planes. To achieve this, three levels of adjustment are available in the Service Mode. The unit is also equipped with an alignment grid pattern generator incorporated on the convergence circuit board.

Trois niveaux de réglages sont accessibles dans le mode service et permettent à partir d'une mire de quadrillage générée par les circuits de convergence d'apporter une correction horizontale et verticale aux trois faisceaux de couleur.

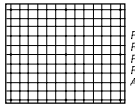
Für jeden Punkt des Bildschirmes und für jeden der drei Ketodenstrahlen ist eine spezielle Korrektur sowohl horizontal als auch vertikal, möglich. Im Service-Mode sind drei Ebenen (Level) für den Abgleich der Konvergenz verfügbar.
Das Gittermuster wird von der Konvergenzschaltung erzeugt.

Per ogni punto dello schermo, ognuno dei tre raggi ha una specifica possibilità di correzione in entrambi i piani orizzontale e verticale. A questo scopo, sono disponibili tre livelli di regolazione in Service Mode. L'unità, inoltre, dispone di un generatore di griglia per l'allineamento, incorporato sulla piastra convergenza.

Tres niveles de ajustes están disponibles en Modo Servicio y permiten a partir de una mira de cuadrícula generada por los circuitos de convergencia, efectuar correcciones específicas en los planos horizontal y vertical para cada uno de los tres haces.

LEVEL 1

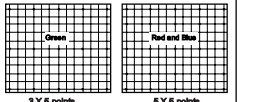
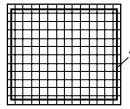
9 points for Green and Blue



Factory adjusts reserved
Réservé aux réglages Usines
Fabrikeinstellungen
Regolazioni riservate alla fabrica
Ajustes reservados para fábrica

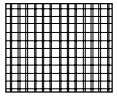
MUST NOT BE USED
NE DOIT PAS ETRE UTILISE
DÜRFEN NICHT VERÄNDERT WERDEN
NO DEVE ESSERE USATO
NO DEBE SER USADO

3 X 3 points

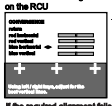
LEVEL 2	LEVEL 3
Large and general corrections *Corrections générales étendues* *Grundeinstellungen* *Correzioni generali estese* *Correcciones generales y extendidas*	*Small local corrections* *Petites corrections locales* *Feineinstellungen* *Piccole correzioni locali* *Pequeñas correcciones locales*
15 or 25 points  **3 X 5 points** **5 X 5 points**	**195 points for Green, Red , Blue** 

DESCRIPTION OF POSSIBLE CONVERGENCE PROBLEMS

RED AND BLUE PICTURE SHIFTED



RED AND BLUE PICTURE SHIFTED (GB)
Statis Adjustments
- Select "CONVERGENCE" in the Install Menu.
- Correct the shift using the "NAVIGATION" buttons on the RCU



- Press the"INSTALL." button on the projector keyboard to select in Installation menu.

- If the required alignment falls outside the central area of the barograph, set all barographs central and make the adjustments using the magnetic centring rings on the red and blue tubes.
- Firstly, unlock the lightly glued centring rings and then make the necessary adjustments.
- Once aligned the rings must be locked using a lightweight glue or varnish in order that subsequent adjustments can be made.

CENTRAL AREA IS CORRECT. BORDERS OR A SMALL AREAS ARE VERY POORLY ALIGNED

A - GREEN geometry is correct :
- Only adjust the Red and Blue geometry using Level 3 of the convergence menu, don't touch the green geometry !

B - GREEN nedds a small adjustment :
- First adjust the Green geometry, then align the Red and Blue geometry using Level 3 convergence menu.

SMALL ADJUSTMENTS ARE NECESSARY EVERYWHERE.
GREEN GEOMETRY IS CORRECT

The some convergence lines are incorrect, but Green geometry is correct.
- Align Red and Blue geometry using convergence menu Level 2.
- Correct the borders if needed using convergence menu Level 3, don't touch the green geometry !.

GREEN GEOMETRY IS POORLY ALIGNED

A - BLUE or RED Geometry is correct :
- Enter the convergence menu Level 2 and press the YELLOW button on the RCU. The red, green and blue grids are displayed but only GREEN geometry can be aligned.
- Adjust the Green geometry to superimpose it on either the Red and/or Blue grid, to ease alignment select the best-converged colour and cover the others lens.

B - BLUE or RED is poorly aligned :
- Enter the Service Mode and select the GEOMETRY menu
- Adjust the alignment of the H/V Amplitudes and E/W Correction settings, if the geometry does not respond to adjustment then:
- Select convergence menu Level 2 and press the YELLOW button on the RCU to select Green (3X5) alignment routine.
- Check that the centre point of the green grid is exactly central
- Align the grid pattern borders exactly with the screen borders.
- Align the outer edge of the picture if necessary, using convergence menu Level 3.
- Align RED convergence using menu Level 2 and if necessary the borders with Level 3.
- Repeat the above process for BLUE alignment.

BORDERS OR SMALL AREAS ARE VERY POORLY ALIGNED

SMALL ADJUSTMENTS

GREEN GEOMETRY IS POORLY ALIGNED

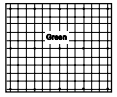
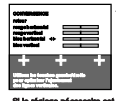


IMAGE ROUGE ET BLEUE DECALEES (F)
Réglage Statique
- Sélectionner convergence dans le menu d'installation.
- Corriger le décalage avec les touches de navigation.



- Appuyer sur la touche "INSTALL." du clavier du RP pour l'accès au menu d'installation

- Si le réglage nécessaire est loin de la position centrale des bargraphs il est recommandé de mettre ceux-ci en position centrale et de corriger avec les anneaux de centrage magnétiques des tubes correspondents.
Débloquer préalablement les anneaux fixés par un collage léger.
- refixer ensuite les anneaux avec une colle ou laque pas trop forte pour autoriser une retouche ultérieure.

CENTRE CORRECT.
BORDS OU PETITE SURFACE NON CORRECTE

A - VERT a une géométrie correcte :
- Régler seulement le Rouge et Bleu avec Level 3, ne pas toucher au vert !.

B - VERT nécessite une légère correction :
- Régler le Vert avec Level 3 et corriger ensuite le Rouge et le Bleu avec Level 3.

PETITES CORRECTIONS NECESSAIRES EN TOUS POINTS DE L'ECRAN.
GEOMETRIE DU VERT CORRECTE

Quelques lignes ont une convergence incorrecte mais le Vert a une géométrie correcte.
- Régler le Rouge et le Bleu avec Level 2.
- Corriger les bords si nécessaire avec Level 3, ne pas toucher au Vert !.

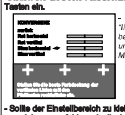
GEOMETRIE DU VERT NON CORRECTE

A - Géométrie du BLEU ou ROUGE correcte :
- Sélectionner Level 2 et utiliser la touche jaune de la télécommande. Les Images Rouge, Verte/Bleue sont affichées mais la correction s'effectue sur le Vert
- Régler l'image du Vert afin de la superposer à celle du Rouge et/ou de celle du Bleu. Couvrir le Bleu ou Rouge . Choisir l'image ayant la meilleure géométrie.

B - BLEU ou ROUGE ont une mauvaise géométrie :
- Sélectionner dans le mode service les Réglages de géométrie H/V et Correction Est/Ouest
- Régler la Géométrie.

Si la géométrie ne peut être corrigée:
- Sélectionner Level 2 pour le Vert (3X5).
- Contrôler la position du centre.
- Régler les côtés de la mire exactement par rapport aux bords de l'écran.
- Régler les bords externes de l'image avec Level 3 si nécessaire.
- Corriger le Rouge avec Level 2 puis ensuite avec Level 3 pour les bords si nécessaire.
- Procéder de même pour le Bleu.

ROTEN UND BAUES BILD SIND VERSCHOBEN (D)
Statische Einstellung
-Wählen Sie im Installationsmenü "KONVERGENZ"
-Stellen Sie die beste Farbdeckung mit den Pfeil-Tasten ein.



- Drücken Sie die Taste "INSTALL." auf dem Nah-bedienfeld des Projektors um in des Installations-Menü zu kommen.

- Sollte der Einstellbereich zu klein sein oder nicht ausreichen, empfehlen wir,alle Anzeigebalken auf Mittelstellung zu bringen und eine Korrektur der Farbdeckung mittels der Zentiermagnete der jeweiligen Röhre vorzunehmen.
- Lösen Sie hierzu zuerst die Verklebung der Ringe und nehmen dann die Einstellungen vor.Danach fixieren Sie die Ringe wieder so mit einem Kleber oder mit Sicherungslack,daß ein spöterer Abgleich möglich ist.

DIE BILDMITTE IST IN ORDNUNG, SCHLECHTE DECKUNG AN DEN BILDRÄNDERN ODER IN KLEINEREN FLÄCHEN.

A - GRÜN-Geometrie ist in Ordnung:
- Gleichen Sie nur Rot und Blau im Level 3 ab, Grün nicht verstellen !.

B - GRÜN benötigt geringe Korrekturen:
- Gleichen Sie Grün im Level 3 nach und korrigieren dann Blau im Level 3.

ÜBERALL SIND KLEINE EINSTELLUNGEN NOTWENDIG, DIE GRÜN-GEOMETRIE IST IN ORDNUNG

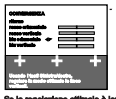
Einige Linien sind nicht in Konvergenz, die Geometrie von Grün ist aber in Ordnung.
- Gleichen Sie Rot und Blau im Level 2 ab,
- Gleichen Sie die Bildränder gegebenenfalls im Level 3 nach, Grün nicht verstellen !.

ABGLEICH DER GRÜN-GEOMETRIE

A - Die BLAU-oder ROT-Geometrie ist in Ordnung:
- Gehen Sie in das Konvergenzmenü Level 2 und drücken Sie die GELBE Taste auf der Fernbedienung. Das rote, grüne und blaue Gitter werden angezeigt. Es läß sich jedoch nur die Geometrie von GRÜN einstellen.
- Bringen Sie das grüne Gitter mit dem roten oder blauen zur Deckung.Zur Vereinfachung des Abgleiche wählen Sie das am besten deckende Gitter und dunkeln die Linse der anderen Farbe ab.

B - BLAU oder ROT sind schlecht abgeglichen :
- Gehen Sie im Service Mode in das Menü "GEOMETRY"
- Gleichen Sie die H- V-Amplituds und die Ost/West-Korrektur nach.Sollte die Geometrieeinstellung nicht reagieren:
- Gehen Sie in das Konvergenzmenü Level 2 und drücken die GELBE Taste auf der Fernbedienung um den GRÜN (3X5)-Abgleich zu wählen.
- Überprüfen Sie ob der Mittelpunkt des grünen Gitters in der exakten Mitte des Bildschirmes ist.
- Stellen Sie die Ränder des Gittemusters exakt auf Ränder des Bildschirmes ein.
- Gegebenenfalls korrigieren Sie die Einstellungen der äußeren Ecken im Konvergenzmenü Level 3.
- Gleichen Sie die ROT-Konvergenz im Level 2 ab,ggf. korrigieren Sie Ränder im Level 3.
- Wiederholen Sie diesen Abgleich mit BLAU.

IMMAGINE ROSSA E BLU SPOSTATA. (I)
Regolazione statica
- Selezionare Convergence nel menu Install.
- Correggere lo spostamento utilizzando i tasti numerici.



- Press the"INSTALL." button on the projector keyboard to select in Installation menu.

- Se la regolazione ottimale è lontana dalla posizione centrale dalla barra grafica, è consigliabile porre questi in posizione centrale ed effettuare le correzioni con gli anelli di centratura magnetici del tubi corrispondenti.
Sbloccare inizialmente gli anelli leggermente incollati.
- Reincollarli utilizzando colla leggera o lacca per rendere possibili successivi ritocchi.

L'AREA CENTRALE È CORRETTA.
I BORDI O UNA PICCOLA AREA SONO SCORRETTI

A - La geometria del VERDE è corretta :
- Regolare solo Rosso e Blu utilizzando Level 3, non toccare il Verde !.

B - Sono necessarie piccole modifiche anche per il VERDE:
- Regolare il Verde utilizzando Level 3 quindi correggere Rosso e Blu utilizzando Level 3.

È NECESSARIO APPORTARE OVUNQUE PICCOLE MODIFICHE. LA GEOMETRIA DEL VERDE È CORRETTA.

Alcune linee non sono in convergenza ma la geometria del Verde è corretta.
- Regolare Rosso e Blu utilizzando Level 2.
- Se necessario, correggere i bordi utilizzando Level 3, non toccare il Verde !.

LA GEOMETRIA DEL VERDE È SCORRETTA.

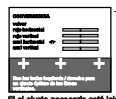
A - La geometria del BLU o del ROSSO è corretta :
- Nel Level 2 utilizzare il Pulsante giallo sul telecomando: vengono visualizzati Rosso, Verde e Blu ma le correzioni vengono effettuate nel Verde.
- Regolare il Verde perchè si sovrapponga su Rosso e/o Blu.

Le lenti Rosso o Blu per una facile regolazione devono essere coperte.

B – La geometria del BLU o del ROSSO è scorretta :
- In Service Mode Geometry selezionare: ampiezza H/V (Orizzontale/Verticale) e East/West.
- Regolare la geometria.

Se la Geometria non è regolabile:
- Selezionare Level 2 per il Verde (3x5).
- Controllare che il centro al trovi esattamente in centro.
- Allineare i bordi del reticolo al bordi dello schermo.
- Se necessario, regolare la parte esterna dell'immagine utilizzando Level 3.
- Correggere il Rosso utilizzando Level 2 e, se necessario, Level 3 per i bordi.
- Ripetere la medesima procedura per il Blu.

IMAGEN ROJA Y AZUL DESPLAZADA (E)
Ajuste estático
-Seleccione la convergencia en el menú Install.
Corrija el desplazamiento con las teclas de navegación.



- Press the"INSTALL." button on the projector keyboard to select in Installation menu.

- Si el ajuste necesario está lejos de la posición central de los gráficos de barras, se recomienda situarlos en la posición central y corregirlos con los anillos de centrado magnéticos de los tubos correspondientes.
Desbloquee previamente los anillos fijados con un pegamento ligero.
- A continuación, fije de nuevo los anillos con un pegamento o una laca no muy fuerte para permitir un ajuste posterior.

EL ÁREA CENTRAL ES CORRECTA.
LOS BORDES O UN ÁREA PEQUEÑA NO SON CORRECTOS
A - VERDE tiene una geometría correcta:
- Ajuste sólo rojo y azul con el nivel 3,no altere verde !.

B - VERDE también necesita una pequeña corrección:
- Ajuste verde con el nivel 3 y después corrija rojo y azul con el mismo nivel 3.

SE NECESITAN PEQUEÑOS AJUSTES EN TODO. LA GEOMETRÍA VERDE ES CORRECTA

Algunas líneas carecen de convergencia, pero la geometría verde es correcta.
- Ajuste rojo y azul con el nivel 2.
- Corrija los bordes si es necesario con el nivel 3, no altere el verde !.

LA GEOMETRÍA VERDE NO ES CORRECTA

A - AZUL o ROJO tienen una geometría correcta:
- Con el nivel 2, utilice el botón amarillo en el control remoto: se visualizan rojo, verde y azul, pero la corrección está en verde.
- Ajuste verde para superponer en rojo o azul.

Las lentes rojas o azules se pueden cubrir. Seleccione la que sea más visible o tenga la mejor geometría.

B - AZUL o ROJO tienen también una geometría deficiente:
- En geometría del modo de servicio, seleccione: amplitud H/V y Este/Oeste.
- Ajuste la geometría.

Si esta geometría no es puede ajustar:
-Seleccione el Nivel 2 para verde (3x5).
- Compruebe que el centro está situado exactamente en el centro.
- Realice los ajustes necesarios para que los bordes de la rejilla coincidan con los de la pantalla.
- Ajuste la parte exterior de la imagen con el Nivel 3 si se necesario.
- Corrija rojo con el Nivel 2 y después con el Nivel 3 para los bordes si es necesario.
- Repita la misma operación para azul.

INFORMATION NOTE - INFORMATION - NOTA INFORMATIVA - NOTA DE INFORMACIÓN

CORRECTION OF BANDING EFFECT (GB)

The "Banding Effect" is a non-uniform area or shadow on the screen, which can happen after convergence adjustments have been performed in Level 3, The effect can be caused by either: – two horizontal lines being to close together (a bright area). - two horizontal lines being to far apart (a dark area).The effect is most visible on a uniform pictures (see diagram below).
Adjustment Procedure :
Identify the colour causing the problem and then blank off the other two lasses.
- Enter the convergence menu at Level 3 and select the corresponding colours alignment routine.
- Using the NUMERICAL buttons (2, 6, 8 and 4) on the RCU, position the cursor on the right hand edge of the non-uniform area of the screen.
- Remove the test grid pattern by disconnecting the cable connected to socket BKD1 on the DCU board.
- Adjust the brightness of the non-uniform area using the "NAVIGATION" (up, down, left and right) buttons on the RCU.
- Select the next cursor position using the NUMERICAL buttons on the RCU and adjust te brightness.
- After completing the adjustment procedure reconnect the cable to BKD1 on the DCU board.

CORREZIONE DELL' EFFETTO BANDING (I)

L'« effetto banding » è costituito da un'area non uniforme (ombra) che può prodursi dopo regolazione della convergenza (p. es. Level 3).
- Quando due linee sono troppo distanti: l'immagine è più scura.
- Quando due linee troppo sono vicine: l'immagine è più luminose.

Ciò è visibile su un'immagine uniforme (Vedere illustrazione sottostante).
Procedura:
- Identificare quale colore provoca il difetto oprrendo le due lenti in modo che sia visibile solo un colore su un monoscopio bianco.
- Selezionare level 3 per il colore corrispondente.
- Posizionare il cursore nella giusta posizione.
- Rimuovere la griglia scollegando il cavo dal connettore BKD1 sul DCU.
- Correggere la non uniformità nella luminosità.
- Spostare il cursore a destra o a sinistra per correggere il punto successivo.
- Terminate la regolazioni, non dimenticare di collegare il cavo BKD1.

CORRECCIÓN DEL EFECTO DE BANDA (E)

El "efecto de banda" es un área no uniforme (sombra). Puede ocurrir después de un ajuste de convergencia (por ej., nivel 3).
- Cuando 2 líneas horizontales están demasiado cercanas: el área es más brillante.
- Cuando 2 líneas horizontales están demasiado distantes: el área es más oscura.

Es visible en una imagen uniforme (vea el dibujo más abajo).
Procedimiento:
- Identifique el color que ocasiona el fallo cubriendo 2 lentes, de modo que sólo se vea un color con una plantilla de prueba blanca.
- Seleccione el nivel 3 para el color correspondiente.
- Coloque el cursor en el lugar adecuado.
- Retire la rejilla desconectando el cable del conector BKD1 en la placa DCU.
- Corrija la falta de uniformidad en el brillo.

Mueva el cursor a la derecha o a la izquierda para corregir la posición siguiente.
- No olvide conectar el cable BKD1 después del ajuste.

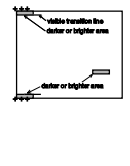
CORRECTION DE L'EFFET DE BANDE (F)

L'effet de bande est une zône d'écran non uniforme (ombre). .Ceci peut survenir après un réglage de convergence (par exemple "Level 3").
- Lorsque deux ligne horizontales sont trop proche : *la bande est brillante*
- Lorsque deux ligne horizontales sont trop distantes : *la bande est sombre.*

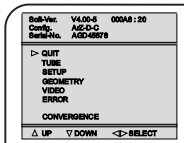
L'effet de bande est visible sur image tes.(Voir Fig. ci-dessous).
Procédure :
- Identifier la couleur affectée par l'effet de bande en recouvrant deux optiques.
- Selectionner le niveau " level 3" correspondant à la couleur du défaut.
- Positionner le curseur à sa place exacte .
- Déselectionner la mire interne en déconnectant le connecteur BKD1 de la platine DCU.
- Corriger le phénomène .
- Déplacer le curseur à gauche ou à droite pour le réglage du point suivant .
- Ne pas omettre de reconnecter le connecteur après les réglages.

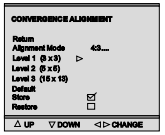
KORREKTUR DES BANDING-EFFEKTES (D)

Der Banding-Effekt ist eine ungleichmäßige Zone oder ein Schatten auf dem Bildschirm. Dies kann nach einem Konvergenzabgleich im Level 3 auftreten-
Der Effekt wird verursacht von.
-zwei horizontale Linien sind zu dicht zusammen (helle Zone)
-zwei horizontale Linien sind zu weit auseinander (dunkle Zone).
Der Effekt wird bei einem einfarbigen Bild am meisten sichtbar (siehe Bild unten).
Abgleich:
Stellen Sie fest, welche Farbe den Effekt verursacht indem Sie jeweils zwei Farben abdecken.
- Gehen Sie in das Konvergenzmenü Level 3 und wählen Sie den Abgleich für die jeweilige Farbe.
- Mit der Ziffernmatrize (2, 8, 6 und 4) der Fernbedienung bringen Sie den Cursor auf die rechte Kante der Zone.
- Schalten Sie das Gittermuster durch Ziehen des Kabels von Verbinder BKD1 auf der DCU-Platine aus.
- Stellen Sie die Helligkeit der Zone mit den Pfeiltasten der Fernbedienung ein.
- Bewegen Sie den Cursor auf die nächste Position und wiederholen die Einstellung.
- Nach dem Abgleich stecken Sie das Kabel wieder auf Verbinder BKD1.

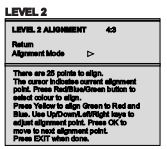


CONVERGENCE ADJUSTMENT - REGLAGES DES CONVERGENCES - KONVERGENZ ABGLEICH - REGOLAZIONE CONVERGENZA - AJUSTE DE CONVERGENCIA



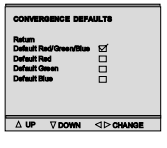


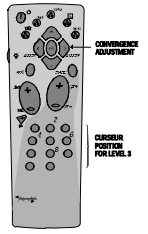
LEVEL 2


LEVEL 2 ALIGNMENT 4:3
Return
Alignment Mode
There are 25 points to align.
The cursor indicates current alignment point. Press Red/Blue/Green button to select colour to align.
Press Yellow to align Green to Red and Blue. Use Up/Down/Left/Right keys to adjust alignment point. Press OK to move to next alignment point.
Press EXIT when done.

LEVEL 3

LEVEL 3 ALIGNMENT 4:3
Return
Alignment Mode
There are 195 points that can be aligned. The cursor indicates current alignment point. Press Red/Blue/Green button to select colour to align.
Press Yellow to align Green to Red and Blue. Use Up/Down/Left/Right keys to adjust alignment point. OK to store.
Use Remote Control keys 2, 8, 4, & 6 to select alignment point.
Press EXIT when done.





SERVICE MODE (GB)

- Select "CONVERGENCE"

- Select the "ALIGNMENT MODE" line of the convergence menu.- Start the adjustment procedures in the 4:3 format.- Select "LEVEL 2" menu line and LEVEL 2 ALIGNMENT menu will appear.

Please Note:

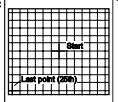
-Level 1 menu line (factory alignment) must be used. This alignment procedure must also be repeated for 16:9 format.

LEVEL 2 ALIGNMENT MENU :

- Press the "OK" button on the RCU to activate the Green test grid pattern, this is used throughout the alignment procedure as a reference.
- Confirm that the Green geometry is correct.
- Press the "RED" button on the RCU to activate the red test grid, the cursor will be set to the centre point on the red grid.
- Using the "NAVIGATION" ("^"up, "v" down, " <" left and " >" right) buttons on the RCU, align the red central cursor position to the green centre grid reference point.
A long press on the associated "NAVIGATION" button on the RCU will accelerate the step size of the adjustment.
- Press the "OK" button on the RCU to advance to the next cursor position and repeat the alignment process until all twenty five (25th = screen bottom left) alignment position have been checked.

IMPORTANT :

When the last position has been adjusted:
- Press the "OK" button on the RCU **only one time and wait for 60s.**
The microprocessor will calculate all the intermediate positions and nothing will happen for 10s, then the cursor will disappear for 15s.Finally the cursor will re-appear move back through all adjustment points to the centre point on the test grid.



- Press the "EXIT" button on the RCU to return to "Level 2" menu.
- Select "RETURN" on the menu.
- Next select "STORE" on the convergence menu.
- Check for "Banding Effect" (see information note page 32).
- Repeat the alignment procedure for "BLUE".

LEVEL 3 ALIGNMENT :

Each one of the 195 alignment point can be reached by;
- Using the NUMERICAL buttons 2 (up), 8 (down), 6 (right) and 4 (left) on the RCU to position the cursor on the screen.
- Convergence alignment is done using the "NAVIGATION" ("^)"up, " v " down, " -" left and " >" right) buttons on the RCU.
- Press the "EXIT" button on the RCU to return to "Level 2" menu.
- Select "RETURN" on the menu.
- Next select "STORE" on the convergence menu.
- Check for "Banding Effect" (see information note page 32).

IMPORTANT :

Once "Level 3" alignment is completed, do not use "Level 2" otherwise all adjustments made in "Level 3" will be ERASED.

16:9 : Select 16:9 format in the Convergence Alignment menu and repeat the above procedures.

Convergence defaults :

If the convergence alignment is completely wrong most adjustments can be made starting with the factory convergence values, these are stored in the NVM as default values.
Default Red/Green/Blue : All of the colours convergence default values are stored in the Convergence RAM IC.
Default Red
Default Green | Load the values for either Red ,Green or Blue.
Default Blue
Restore : copies the last stored values from the NVM to the convergence RAM IC.
Store : Copies all Convergence RAM values to the NVM.

SERVICE MODE (F)

- Selectionner "CONVERGENCE"

- Selectionner "Alignment Mode".
- Commencer les réglages avec le format "4:3".
- Selectionner " Level 2".
Le menu de réglage " Level 2" apparaît.

Note :

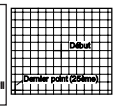
La procédure de réglage s'applique également au format 16/9.

MENU D'ALIGNEMENT "LEVEL 2" :

- Appuyer sur la touche OK de la télécommande.
La mire de convergence apparaît .
- Contrôler la Géométrie du Vert .
- Appuyer sur la touche Rouge de la télécommande pour régler le Rouge par rapport à la mire du Vert servant de référence .
Le curseur est au centre.
- Utiliser les touches de navigation "△", " ▽ ", " ◁ ", et " ▷ " de la télécommande pour effectuer le réglage.
Une longue pression permet d'obtenir un effet d'accélération du réglage.
Après le réglage du centre:
- Appuyer sur OK pour la sélection du point suivant à régler.
Lorsque ce second point est aligné ou si aucun réglage n'est nécessaire appuyer sur la touche "OK".
Effectuer ainsi jusqu'au dernier point (25)au coin inférieur gauche.

IMPORTANT :

Lorsque le dernier point est réglé :
- Appuyer sur "OK" **une seule fois et attendre 60s.**
Le microprocesseur calcule toutes les positions intermédiaires: rien ne se passe à l'écran durant 10s.Le curseur disparaît pendant 15s.
Finalement, vla toutes les positions, il se stabilise au centre de l'écran.



- Appuyer sur "Exit" pour retourner au menu "Level 2".
- Selectionner "Return": le menu "convergence alignment"apparaît
- Mémoriser par "store".
- Contrôler l'effet de Bande (Voir ci-après la Note d'Information).
Même procédure pour le Bleu.

ALIGNEMENT LEVEL 3

Chacun des 195 points de réglage est accessible :
- Utiliser les touches numériques suivantes: 2 (haut), 8 (bas), 6 (droit) et 4 (bas).
- le réglage des convergences s'effectue au moyen des touches de navigation haut (△),bas ▽ ,gauche ◁ et droit ▷ .
- Appuyer sur la touche "EXIT"de la télécommande pour retourner au menu "Level 2"
- Sortir du menu d'alignement des convergences et mémoriser.
- Contrôler l'effet de Bande (Voir la Note d'information ci-après).

IMPORTANT :

Après avoir réglé le "level 3" ne pas utiliser le "level 2", les corrections effectuées au "level 3" seraient perdues.

16:9 : Selectionner 16:9 dans le menu Mode alignement; répéter la procédure.

Valeurs par défauts :

En cas de déréglages importants des convergences,l'alignement peut être repris à partir des valeurs usines.
Ces valeurs par défaut sont mémorisées en NVM.
Default Red/Green/Blue : Toutes les valeurs par défaut des trois couleurs sont mémorisées dans la RAM de convergence.
Default Red
Default Green | Charge les valeurs pour le rouge, le Vert ou le Bleu.
Default Blue
Restore : copie toutes les valeurs des données NVM en mémoire RAM de convergence.
Store : Copie la valeur RAM en NVM de convergence.

SERVICE MODE (D)

- Wählen Sie "CONVERGENCE"

- Wählen Sie "ALIGNMENT MODE".
- Beginnen Sie den Abgleich im 4:3 Format
- Wählen Sie Level 2.
Das "LEVEL 2 ALIGNMENT"-Menü erscheint.

Bitte beachten sie:

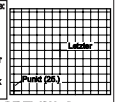
- Die Einstellungen im Level 1 sind Werkseinstellungen und sollten nicht verändert werden.
Der Konvergenzabgleich ist auch für das 16:9 Format vorzunehmen.

ABGLEICHMENÜ "LEVEL 2" :

- Drücken Sie OK-Taste auf der Fernbedienung um das Grün-Gittermuster zu aktivieren. Dieses dient für den gesamten Abgleich als Referenz.
- Überprüfen Sie die Grün-Geometrie.
- Drücken Sie die rote Taste auf der Fernbedienung um das rote Gittermuster zu aktivieren. Der Cursor erscheint in der Mitte des roten Gitters.
- Mit den Pfeiltasten ("^" hoch, " ▽ " runter, " ◁ " links , " ▷ " rechts) auf der Fernbedienung bringen Sie die Mitte des roten Cursors auf die Mitte des Bezugspunktes im grünen Gitter. Ein längeres Drücken der Pfeiltasten erhöht die Schrittgröße beim Abgleich.
- Drücken Sie die OK-Taste um auf die nächste Cursor-Position zu gelangen. Wiederholen Sie den Abgleich bis alle 25 Abgleichpunkte (der 25.Punkt ist links unten) korrigiert sind.

WICHTIG :

Wenn der letzte Punkt abgeglichen wurde:
- Drücken Sie die OK-Taste **nur einmal und warten Sie etwa 60s.**
Der Microprozessor berechnet alle Zwischen-positionen. Für etwa 10s geschieht nichts,dann verschwindet der Cursor für etwa 15s. Dann läuft der Cursor über alle Abgleichpunkte zurück in die Mitte des Gittermusters.



- Drücken Sie die EXIT-Taste um in das "LEVEL 2"-Menü zurückzukehren.
- Wählen Sie im Menü "RETURN".
- Wählen Sie im Konvergenzmenü "STORE" .
- Überprüfen Sie das Bild auf den Banding-Effekt (siehe Information auf Seite 32). Wiederholen Sie den Abgleich mit BLAU.

ABGLEICH LEVEL 3 :

- Jeden der 195 Abgleichpunkte auf dem Bildschirm erreichen Sie über die Ziffernstastur der Fernbedienung ("2" hoch, "8" runter, "4" links, "6" rechts).
- Der Konvergenzabgleich wird mittels der Pfeiltasten vorgenommen "(^)" hoch, "(▽)" runter,"(-)" links, "(▷)" rechts.
- Drücken Sie die EXIT-Taste um in das "LEVEL 2"-Menü zurückzukehren.
- Wählen Sie im Menü "RETURN".
- Wählen Sie im Konvergenzmenü "STORE".
- Überprüfen Sie das Bild auf den Banding-Effekt (siehe Information auf Seite 32).

WICHTIG :

Nach dem Abgleich im Level 3 machen Sie keine Einstellungen mehr im Level 2, da sonst die Abgleichswerte des Level 3 gelöscht werden.

16:9 : Wählen Sie das 16:9 Format im Konvergenzmenü und wiederholen Sie den gesamten Abgleich.

Konvergenz-Defaultwerte :

Sollte der Konvergenzabgleich völlig inkorrekt sein, kann ein Neuabgleich ausgehend von den Fabrikswerten ratsam sein.
Diese sind als Defaultwerte im NVM gespeichert.
Default Rot/Grün/Blau : die Defaultwerte der Konvergenz aller Farben sind im Konvergenz-RAM gespeichert.
Default Rot
Default Grün | Laden Sie die Defaultwerte einzeln für Rot, Grün oder Blau.
Default Blau
Restore : die zuletzt in das NVM gespeicherten Werte werden ins Konvergenz-RAM kopiert.
Store : alle Werte aus dem Konvergenz-RAM in das NVM.

SERVICE MODE (I)

- Selezionare "CONVERGENCE"

- Selezionare « Allgnement Mode ».
- Avviare la regolazione con formato 4:3.
- Selezionare « Level 2 ».
- Viene visualizzato il menu Level 2 allgnement.

Nota :

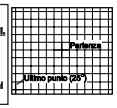
La procedura deve essere effettuata anche in modo 16/9.

LIVELLO 2 MENU DI REGOLAZIONE :

- Premere il tasto "OK" sul telecomando. Viene visualizzata la griglia verde.
- Controllare che la geometria della grigila Verde sia corretta.
- Premere il tasto Rosso sul telecomando per regolare il Rosso con la grigila Verde come riferimento.
- Il cursore si trova al centro.
- Utilizzare i tasti su, giù sinistra e destra sul telecomando per regolare la posizione di allineamento.
Con una lunga pressione del tasto si determina un effetto di accelerazione del passo di allineamento.
Dopo avere regolato il centro :
- Premere il tasto "OK" per selezionare la posizione successiva da regolare.Quando il secondo punto è stato regolato o la regolazione non è necessaria, premere il tasto "OK".
Proseguire la procedura fino a raggiungere l'ultimo punto (25°) sulla parte inferiore sinistra.

IMPORTANTE :

- Quando l'ultimo punto viene regolato, premere il tasto **OK una sola volta ed attendere 60 secondi.**
Il microprocessore calcola tutte le posizioni intermedie: per 10 secondi non accade nulla. Quindi, il cursore scompare per 15 secondi. Il cursore si sposterà infine su tutte le posizioni fino al centro.



Premere « Exit » per ritornare al menu " Level 2 allgnement ".
- Selezionare "Return": viene visualizzato il menu "Convergence Allgnement".
- Memorizzare le regolazioni.
- Controllare la presenza d' « effetto Banding » (Vedere nota informativa). Seguire la medesima procedura per il blu.

LIVELLO 3 REGOLAZIONI :

- I 195 punti possono essere raggiunti mediante:
- L'uso dei tasti numerici RCU: 2 (su), 8 (giù), 6 (destra), e 4 (sinistra).
- La convergenza viene regolata mediante i tasti up "(^)" , down "(v)", left "(-)" e right "(-)".
- Uscire dal menu « Convergence allgnement » e memorizzare le regolazioni acquisite.
- Controllare la presenza di effetto Banding (Vedere nota informativa).

IMPORTANTE ::

Dopo avere regolato « level 3 » non utilizzare « level 2 » perchè le correzioni effettuate al « level 3 » andrebbero perse.

16:9 : Selezionare 16:9 in Allgnement Mode e ripetere la procedura.

Default di convergenza :

Se l'allineamento della convergenza è completamente errato le regolazioni possono essere effettuate richiamando i valori di convergenza di fabbrica. Questi valori vengono memorizzati come valori di default in nella NVM.
Default Red/Green/Blue : Tutti i valori di default dei tre colori vengono memorizzati nell IC RAM di convergenza.
Default Red
Default Green | Carica i valori per rosso, verde e blu
Default Blue
Restore : Copia gli ultimi valori memorizzati dalla NVM nella RAM di convergenza.
Store : Copia i valori RAM nella convergenza della NVM.

SERVICE MODE (E)

- Seleccione "CONVERGENCIA"

- Seleccione "Modo de alineación".
- Inicie los ajustes con el formato "4:3"
- Seleccione "nivel 2"
Aparece el menú de alineación de nivel 2.

Nota:

El procedimiento debe realizarse también para 16/9.

MENU DE ALINEACION "NIVEL 2":

- Pulse "OK" en el control remoto y aparecerá la rejilla verde.
- Compruebe si la geometría verde es correcta.
- Pulse el botón rojo en el control remoto para ajustar rojo con la rejilla verde como referencia.
El cursor está en el centro.
- Ajuste la posición de la alineación con las teclas del control remoto para moverse hacia arriba, abajo, izquierda y derecha. Si las pulsa de forma prolongada, se produce un efecto de aceleración en el tamaño del paso de la alineación.
Después del ajuste del centro:
- Pulse "OK" para seleccionar la posición siguiente a ajustar.
Cuando se ajusta este segundo punto o el ajuste no es necesario, pulse "OK".
Repita la operación hasta el último punto (nº 25) en la parte inferior izquierda.

IMPORTANTE :

Cuando se ajusta el último punto:
-Pulse **"OK" una vez y espere durante 60 segundos.**
El microprocesador calcula todas las posiciones intermedias: durante 10 segundos no ocurre nada. Después, el cursor desaparece durante 15 segundos, y finalmente se mueve a todas las posiciones hasta el centro.

- Pulse "Salida" para volver al menú "Nivel 2".
- Seleccione Return: aparece el menú de alineación de convergencia.
- Almacene.
- Compruebe si se produce el efecto de banda (vea la nota de información).Siga el mismo procedimiento para azul.

ALINEACION NIVEL 3 :

Se pueden alcanzar los 195 puntos:
- Utilice los botones de número RCU: 2 (arriba), 8 (abajo), 6 (derecha) y 4 (izquierda).
- La convergencia se ajusta mediante las teclas de navegación hacia arriba, abajo, izquierda y derecha.
- Salida a almacenar y menú de alineación de convergencia.
- Compruebe si se produce el efecto de banda (vea la nota de información)

IMPORTANTE ::

Una vez configurado el "nivel 3", no utilice el "nivel 2" o perderá las correcciones efectuadas en el 3.

16:9 Seleccione 16:9 en el modo de alineación y repita el procedimiento

Parámetros de convergencia por defecto:

Si la alineación de convergencia es totalmente errónea, la mayor parte de los ajustes se pueden realizar con los valores de convergencia de fábrica.Estos parámetros se almacenan como valores por defecto en una memoria no volátil.
Default Red/Green/Blue :todos los valores por defecto de los tres colores se almacenan en la memoria de acceso aleatorio (RAM) IC de convergencia.
Default Red
Default Green | Cargue los valores para rojo, verde o azul.
Default Blue
Restore : copia los últimos valores almacenados de la memoria no volátil a la RAM de convergencia
Store : copia los valores RAM en la NVM de convergencia.

Note :

In the event of it being necessary to replace all three tubes (tubes marked or still operational), it is easier, when making convergence adjustments, to replace one tube first, and converge it to the two other tubes in order to keep the original geometry setting.
Then replace the two other tubes and realign them to the reference tube.

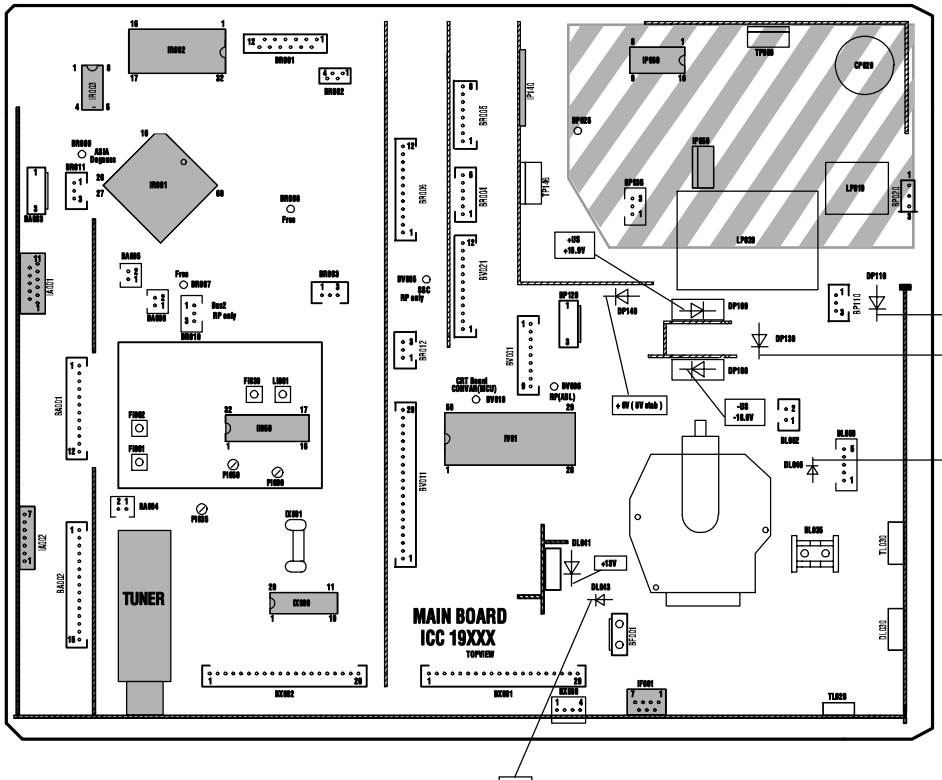
En cas de nécessité de changement des trois tubes (tubes marqués ou encore fonctionnels) Il est plus simple, au niveau du réglage des convergences, de changer d'abord un tube, de le converger sur les deux autres pour conserver le réglage de géométrie original.
Ensuite changer les deux autres tubes et les réaligner sur le tube de référence.

Im Falle, daß ein Auswechseln aller drei Röhren notwendig ist, ist es einfacher (falls die Röhren noch funktionsfähig sind), die notwendige Konvergenzeinstellung so vorzunehmen, daß zunächst erst eine Röhre ausgewechselt wird: Gleichen Sie diese den beiden alten Röhren an, damit Sie die originale geometrische Einstellung haben.
Wechseln Sie dann die beiden anderen Röhren und gleichen Sie diese der Referenzröhre an.

Nel caso in cui si renda necessaria la sostituzione dei tre tubi (tubi marcati o ancora in funzione) è più semplice, quando si eseguono regolazioni della convergenza, sostituire prima un tubo e convergerlo agli altri due per conservare la regolazione di geometria iniziale. Sostituire quindi gli altri due tubi e riallinearli al tubo di riferimento.

Si necesita cambiar los 3 tubos (tubos marcados o aún funcionales), resulta más fácil, en lo que respecta al ajuste de las convergencias, cambiar primero un tubo y convergirlo sobre los otros 2 para mantener la configuración de la geometría original.
Cambie seguidamente los otros dos tubos y proceda a realinearlos con el tubo de referencia.

LOCATION OF CONTROLS - EMPLACEMENT DES REGLAGES - SERVICE LAGEPLAN - POSIZIONE REGOLATORI DI SERVIZIO - SITUACIÓN DE LOS AJUSTES



Do not disconnect modules when they are energized ! Repairs on power supply section are to be carried out only with isolating transformer.

Ne pas retirer les modules lorsqu'ils sont sous tension. N'effectuer les travaux de maintenance sur la partie reliée au secteur (Switch mode) qu'au travers d'un transformateur d'isolement.

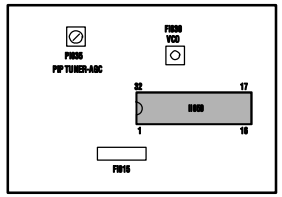
Module nicht bei eingeschaltetem Gerät entfernen ! Servicearbeiten am Netzteil nur unter Verwendung eines Regeltrenntrafos durchführen.

Non scollegare i moduli quando sono alimentati ! effettuare riparazioni sulla sezione alimentatore solo con transformatore separatore.

No desconectar los módulos cuando están activados ! Las reparaciones en la sección de alimentación de energía deben ser ejecutadas solamente con un transformador de separacion.

Part of Board connected to mains supply.
Partie du châssis reliée au secteur.
Primärseite des Netzteils
Parte del pannello collegato alla rete di alimentazione
Parte del chasis conectada a la red

RF-IF PART FEP 19100 PIP



ADJUSTMENTS - REGLAGES - EINSTELLUNGEN - REGOLAZIONE - AJUSTES

U Sys	SERVICE MODE	Standard TV - Settings : OMA Position TV to AV1 : Black test pattern	V= DP 110	TUBE NAME / DESCRIPTION / Usys jumper / Usys A59EGD048X322 / 4/3 25" SF / JP914 / 137V +/- 0.5V A68EGW83X122 / 4/3 28"MP / JP914 / 137V +/-0.5V A68EHJ43X12 / 4/3 28" MP / JP915 / 134V +/- 0.5V A68EGD038X300 / 4/3 29" SF / JP914 / 137V +/-0.5V A68EGD038X322 / 4/3 29" SF / JP914 / 137V +/-0.5V A80EJA163X122 / 4/3 33" MP / JP914 / 137V +/- 0.5V A90AFX14X12 / 4/3 37" MP / JP914 / 137V =/-0.5V W66EGV023X122 / 16/9 28" SF / JP915 / 134V +/- 0.5V W66EGV023X122 / 16/9 28" SF (PANORAMA) / JP917 / 140V +/- 0.5V W76EGV023X122 / 16/9 32"SF / JP915 / 134V+/- 0.5V W76EGV023X122 / 16/9 32"SF (PANORAMA) / JP917 / 140V+/- 0.5V W76EGX023X122 / 16/9 32"SF / JP915 / 134V +/- 0.5V
IF Alignment VCO Standard BG	FI030	Switch set to standard BG IF Signal 38.9 MHz (BG) 30 mV G 75Ω TUNER 11 NH01	V= RI078 AFC (uP) 42 IR01	Adjust FI30 / PI54 for 2,5VDC +/-0.1V
VIDEO-LEVEL Alignment	PI030 PI035	Standard Signal (BG / L) 15kHz test pattern 3 mV G 75Ω TV set Antenna	Oscillo. SCART Video output	Adjust PI030 : standard BG Adjust PI035 : standard L for V = 0,7 Vpp (Black/white level)
U G2 METHOD 1 Measurement method	G2 potentiometer	Standard TV - Settings : OMA Position TV to AV1 : Black test pattern	highest output CRT 1910X (100Hz) : R signal : IB01 Pin 15 G signal : IB03 Pin 15 B signal : IB02 Pin 15	V 1 - Adjust VG2 : V= 160V +/- 5 V 2 - Adjust Focus 3 - Adjust VG2 : V= 160V +/- 3V
METHOD 2 Cutoff counter method SERVICE MODE	SERVICE MODE	Standard TV - Settings : OMA Position No test pattern (generated by internal text processor).		Adjust R-Cut off and G-Cut-off to 80H temporary. Select G2 Alignment in Service Mode Adjust the lowest value to: Select "Restore" in Service Mode and press "OK" to restore the cut-off values. Tube Type / Value A66EGW 60H A66EHJ A59EGD 50H A68EGD 50H A68EGV 50H A80EJA W66EGV - W76EGV 50H W76EGX 60H A90AFX 50H
FOCUS	FOCUS	Test pattern (standard values)		Sharp picture

RF / IF PART FEP 19100 PIP

IF Alignment VCO Standard BG	FI030	Switch set to standard BG IF Signal 38.9 MHz (BG) 30 mV G 75Ω PIP TUNER 11 NH002	V= RI077 AFC 23 II050	Adjust FI30 for 2,5VDC +/-0.1V
TUNER-AGC	PI050	Signal 210.25 MHz 3 mV G 75Ω TV set Antenna Input PIP Tuner	11/NH002 IF output Tuner Spectrum Analizer	Adjust PI050 : Maximum level Reduce level with PI50 about 10dB.

SERVICE MODE (GB) | MODE SERVICE (F) | SERVICE - MODE (D) | SERVICE - MODE (I) | MODO SERVICIO (E)

I - ENTER/EXIT SERVICE MODE - ENTREE/SORTIE DU MODE SERVICE - EIN-/AUSTIEG SERVICE MODE - ACCESSO/USCITA ALLA/DALLA FUNZIONE - ENTRADA/SALIDA MODO SERVICIO

1 ACCESSING SERVICE MODE

TV Control Panel Access

- Turn "Off" the TV using the ON/OFF button.
- Press the FR- and VOL- buttons ,hold them down and switch "On" the TV with the ON/OFF button.
- After the normal switch on time the main service menu appears on the screen.

Note :
In service mode :
- *The child lock function is re-initialized.*
- *The lock function (PIN Number) is ignored.*
- *Clear any wake-up/sleep timers.*
- *Pin 8 of the scart plug has to be ignored.*
- *AV- Link VSS detection , EPG and Teletext have to be disabled.*
- *Automatic stand-by functions, in case of no antenna signal have to be disabled.*
- *Contrast, colour, brightness : factory settings.*
- *Sharpness : middle (normal)*
- *Contrast expander to low.*
- *Install Mode disabled.*
- *Default format and zoom..*

Accès avec la touche MIA

- Arrêter le TV avec la touche MIA.
- Tout en appuyant sur les touches FR - et VOL - , mettre le TV en service à l'aide de la touche MIA.
- Maintenir enfoncées les touches FR - et VOL -.
  Le menu suivant apparît.

Note :
En mode service:
- *Le verrouillage parental est effacé (réinitialisé).*
- *La fonction de verrouillage (PIN number) est ignorée.*
- *La programmation des heures réveil/minuterie est annulée.*
- *Possibilité de passer en mode service avec commutation lente active.*
- *AV- Link , la détection VSS, l'EPG et Teletext doivent être désactivés.*
- *La fonction de stand-by automatique en cas d'absence de signal d'antenne n'est pas validée.*
- *Les valeurs de réglages usine sont affectées au contraste, à la couleur et à la netteté.*
- *Le contour est accru à sa valeur moyenne.*
- *L'expansion contraste est au niveau bas.*
- *Le mode d'installation et l'ambiance «Light sensor» ne sont pas validés.*
- *Zoom et format ignorés.*

Zugriff über die Taste der Fernbedienung

- Fernbedienung über den EIN/AUS - Taste ausschalten.
- Gleichzeitig die Tasten FR- und VOL- drücken und den TV über die EIN/AUS-Taste einschalten.
- Die Tasten FR- und VOL - gedrückt halten.

Anmerkung :
Im SERVICE MODE :
- *wird die Sperrfunktion (PIN-Nummer) ignoriert und die Kindersicherung gelöscht (reinitialisiert).*
- *wird die Eltern- und Abschaltzeitgeber gelöscht.*
- *wird der SCART - Schaltspannung ignoriert.*
- *wird die AV- Link VSS, EPG und Teletext gesperrt.*
- *wird die Automatische Abschaltung bei fehlendem Antennensignal gesperrt.*
- *werden Kontrast, Farbe und Helligkeit auf standardmäßig gesetzt.*
- *wird die Bildschärfe auf Mittelstellung (normal) gesetzt.*
- *wird der Kontrast-Expander auf "gering" gesetzt.*
- *wird der Installations Modus gesperrt.*
- *wird das Standardformat bzw. der Standard-Zoom-modus gewählt.*

Accesso al service modo

- Spegnere il TV mediante il pulsante ON/OFF.
- Premere i tasti FR- e VOL- azionando il TV con il pulsante ON/OFF.
- Premere i pulsanti FR - e VOL -.

Note :
Nel service mode:
- *la funzione Blocco (Numero Pin) viene ignorata e la funzione Blocco bambini è reinizializzata.*
- *Cancellato la programmazione sveglia .*
- *Il piedino 8 della scart deve essere ignorato.*
- *I riconoscimenti AV-Link VSS, EPG e televideo devono essere disabilitati.*
- *Funzione automatica di standby, nel caso di mancanza del segnale d'antenna deve essere disabilitata.*
- *Contrasto, colore, luminosità : regolazioni di fabrica.*
- *Nitidezza: media (normale)*
- *Espansore contrasto troppo basso.*
- *Modo Install disabilitato.*
- *Formato default e zoom.*

Acceso panel control TV

- Apague la TV con el botón MARCHA/PARADA.
- Pulse los botones FR - y VOL - y sin soltarlos,pulser la tecla MARCHA/PARADA.
- Libere los botones FR - y VOL - .

Note :
En modo servicio:
- *Se ignora la función de bloqueo y se inicializa la función "cerradura infantil".*
- *Anula todas las horas programadas .*
- *La patilla 8 del SCART es ignorada .*
- *La detección VSS AV Link, EPG, y Teletxto son desactivados.*
- *El apagado automático en caso de ausencia de señal de antena es desactivado.*
- *El contraste,color y brillo son puestos a los valores de fábrica.*
- *la nitidez es puesta al punto medio.*
- *La expansión de contrast al nivel bajo*
- *Modo Instalación es desactivado.*
- *Zoom y formato ignorados.*

2 TEMPORARY EXIT FROM SERVICE MODE

- Press Exit on the Remote control.
- Everyday use menu can be accessed via Menu button.

- Field Service Menu can be re-entered via Blue button.

2 SORTIE TEMPORAIRE DU MODE SERVICE

- Utiliser la touche Exit de la télécommande.
- Le menu utilisateur peut être accessible via la touche «Menu».

- Pour entrer à nouveau dans le mode service utiliser la touche bleue.

2 VORÜBERGEHENDES VERLASSEN DES SERVICE MODE

- Auf der Fernbedienung EXIT drücken.
- Mit der Taste Menü gelangen Sie zum Menü Übersicht

- Mit der blauen Taste gelangen sie zum Service-Menü.

2 USCITA TEMPORANEA DAL SERVICE MODE

- Premere Exit sul telecomando.
- Al menu di uso quotidiano si accede attraverso il pulsante Menu.

- È possibile rientrare nel Menu Field Service attraverso il pulsante Blue.

2 SALIDA TEMPORAL DEL MODO SERVICIO

- Pulse Salir en el mando a distancia
- Con el botón Menu puede acceder al menú de uso cotidiano.

- Puede entrar el Menú Servicio con el botón azul.

3 EXITING FROM SERVICE MODE

Remote Control | TV control panel | on/off key or Stand-by

- Go to the point QUIT in the Field service Mode main menu.
- Press «>, «OK» or «> button
- Press «VOL.+»button
- Stand-by function or «off» with on/off key.
- TV mode.

Values or adjustments are no stored before exiting from service mode will not be written into the NVM.

3 SORTIE DEFINITIVE DU MODE SERVICE

télécommande | clavier du téléviseur | Inter MIA ou Stand-by

- Aller au point «QUIT» dans le menu principal du mode service.
- Appuyer sur «>», «OK» ou «>
- Appuyer sur «VOL.+»
- Fonction Stand-by ou «off» par MIA.
- Mode TV.

Les valeurs ou réglages non mémorisées avant le sortie ne seront pas écrites en NVM.

3 ENDGÜLTIGES VERLASSEN DES SERVICE MODE

Fernbedienung | TV-Bedienfeld | EIN /Aus - Taste

- Wenn der Zeiger im Hauptmenü des Service-Modus auf BEENDEN steht
- Taste «>, «OK» oder «>»drücken
- Taste «VOL+» drücken
- Mit Standby-Funktion oder EIN/AUS - taste ausschalten
- TV-Modus

Werte und Einstellungen, die nicht vor dem Verlassen des Service-Modes gespeichert werden, werden nicht in den Permanentspeicher überschrieben.

3 USCIRE DAL SERVICE MODE

telecomando | Pannello comando TV | Tasto on/off di

- Andare al punto QUIT nel Modo Field service del Menu principale
- Premere «>, «OK» o «>
- Premere «VOL.+»
- Funzione Stand-by o «off» con il tasto on/off
- Modo TV.

Valori o regolazioni non vengono memorizzati prima di uscire dal Modo service e non vengono scritti nell'NVM.

3 SALIDA DEL MODO SERVICIO

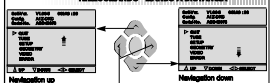
telecomando | Panel de control TV | Tecla on/off de

- Vaya al punto QUIT del menú principal de modo Servicio
- Pulse «>, «OK» o «>
- Pulse el botón«VOL.+»
- Función Stand-by o desconexión (off) con tecla on/off.
- Modo TV.

Los valores o ajustes no se guardan antes de salir del modo servicio y no se escriben en el NVM

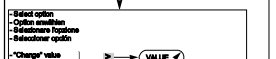
II - NAVIGATION INSIDE THE SERVICE MODE - DEPLACEMENT DANS LE MODE SERVICE - SUCHE IN SERVICE MODE - OPZIONI NEL SERVICE MODE - BUSQUEDA EN MODO SERVICIO

1 REMOTE CONTROL - TELECOMMANDE - FERNBEDIENUNG - TELECOMANDO - MANDO A DISTANCIA

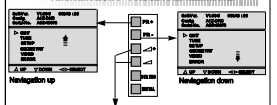


- Select option
- Option anwählen
- Sélectionner l'option
- Seleccionar opción

- "Change" value
- Wert "ändern"
- "Cambiare" valore
- "Cambiar" valor

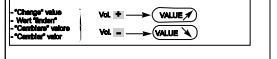


2 TV CONTROL PANEL - CLAVIER TV - TASTATUR DES FERNSEHGERÄTS - COMANDI DEL TELEVISORE - MANDO DEL TELEVISOR



- Select option
- Option anwählen
- Sélectionner l'option
- Seleccionar opción

- "Change" value
- Wert "ändern"
- "Cambiare" valore
- "Cambiar" valor



Changing page - Changement de page - Seitenwechsel - Cambiare Pagina - Cambio de página

End of page - Fin de page - Am Seitenende - Fine della pagina - Fin de página

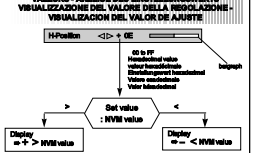
Beginning of Page - Début de page - Am Seitenanfang - Inizio della pagina - Comienzo de página

< ∇ >
Indicates a following page - Signifie qu'une page suit - Bedeutet, daß eine Seite folgt - Indica una pagina seguente - Indica una página siguiente

< Δ >
Indicates a preceding page - Signifie qu'une page précède - Bedeutet, daß eine Seite vorangeht - Indica una pagina precedente - Indica una página precedente

- The menu turns the page when the cursor reaches the arrow.
- Amener le curseur sur la flèche pour tourner la page - Der Cursor muß auf den Pfeil gebracht werden, um eine Seite umzublättern - Il cursore deve raggiungere la freccia per cambiare pagina - El cursor debe llegar a la flecha para pasar a la página siguiente o anterior
- Il curseur su < ∇ >, < Δ > cambia pagina.
- Cursor en < ∇ >, < Δ > cambia las páginas

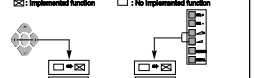
3 DISPLAYING THE VALUE OF THE SETTING - AFFICHAGE DES VALEURS - ANZEIGE DES EINSTELLUNGSWERTS - VISUALIZZAZIONE DEL VALORE DELLA REGOLAZIONE - VISUALIZACION DEL VALOR DE AJUSTE



4 TOGGLE FUNCTIONS - VALIDATION DES FONCTIONS - EIN-UND AUSSCHALT FUNKTIONEN - FUNZIONI DI COMMUTAZIONE - FUNCION CONMUTACION

To enable a function check (tick) ☒ the box.
Pour valider une fonction cocher ☒ la case correspondante
Zum Implementieren einer Funktion das Kontrollkästchen ☒ anklicken (ankreuzen)
Per implementare una funzione di verifica, (visto) ☒ la casella
Para poner en funcionamiento una función verifique (señale) ☒ la casilla

☒ : Implemented function ☐ : No implemented function



5 STORING VALUES IN MEMORY - MEMORISATION DES VALEURS - SPEICHERN DER WERTE - MEMORIZZARE I VALORI - VALORES ALMACENADOS EN LA MEMORIA

After setting, the values are stored in NVM.
Après réglages les valeurs sont mémorisées en NVM.
Nach den Einstellen werden die Werte im NVM gespeichert.
Dopo la regolazione i valori vengono memorizzati in NVM.
Después del ajuste, los valores son almacenados en NVM

The box ☐ becomes ☒
During alignment, values are temporarily stored in RAM.
En cours d'alignement les valeurs sont mémorisées temporairement en RAM
Während des Abgleiche werden die Werte vorübergehend im RAM gespeichert
Durante l'allineamento i valori vengono memorizzati provvisoriamente sulla RAM
Durante el alineamiento, los valores son almacenados temporalmente en RAM

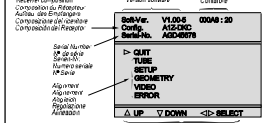
Store ⇒ Copies RAM values into NVM
Copie la valeur RAM en NVM
Kopieren des Werts von RAM nach NVM
Copiare i valori RAM in NVM
Copiar valores RAM en NVM

Restore ⇒ Copies all values from NVM into RAM.
Copie toutes les valeurs des données NVM en RAM
Kopiert alle NVM-Datenwerte in den RAM
Copiare tutti i valori da NVM sulla RAM
Copia todos los valores de NVM a RAM

ROM Default ⇒ All the default values of a page in use are stored in RAM.
L'ensemble des valeurs par défaut d'une page courante est chargé en RAM.
Sämtliche Standardwerte der aktuellen Seite werden im RAM geladen
Tutti i valori di default di una pagina in uso vengono memorizzati sulla RAM
Todos los valores por defecto de la página en curso están almacenados en RAM.

III - LITE-MENU FOR FIELD SERVICE MODE - MENUS DU MODE SERVICE

1 MAIN MENU - MENU PRINCIPAL



Navigation visible the Service Mode
Navigation dans le Service Mode
Suche im Service Modi
Cursore del Service Mode
Búsqueda en el Modo Servicio

TV CONFIGURATION - CONFIGURATION DU TV - GERÄTEKONFIGURATION - CONFIGURAZIONE DEL TV - CONFIGURACIÓN Y TV

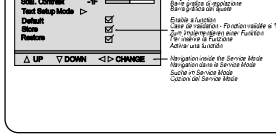
Config. A02-DKC

Character 1 : Tube type : «A» 4/3 , «W» =16/9
Character 2 : Chassis type : «B» = 90Hz, «1»= 100 Hz
Character 3 : Zoom available : «Z»=yes, «-»=not
Character 4 : Ambient Sensor : «S»= detected, «-»= not
Character 5 : Dolby : «D»=detected, «-»= not
Character 6 : AV Link detected : «K»=IR link detected, «-»= not
Character 7 : Password mode: «C»= Password stored, «-»= not

TIME COUNTER - COMPTEUR DE TEMPS - ZÄHLER - CONTATORE - CONTADOR

The counter indicates the TV's number of service hours it counts from to 0 to 65535 hours. The display is hexadecimal.
Le compteur de temps indique le nombre d'heures de service de TV. Il compte de 0 à 65535 heures. L'affichage est en hexadécimal.
Der Zähler zeigt an, wieviele Stunden der Fernseher in Betrieb ist. Die Anzeige ist hexadezimal.
Il contatore indica il numero di ore di servizio del TV. Può contatore da 0 a 65535. La visualizzazione è esadecimale.
El contador indica el número de horas de servicio de la TV. Cuenta de 0 a 65535 horas. El visualizador es hexadecimal.

2 SUBMENU - SOUS-MENU



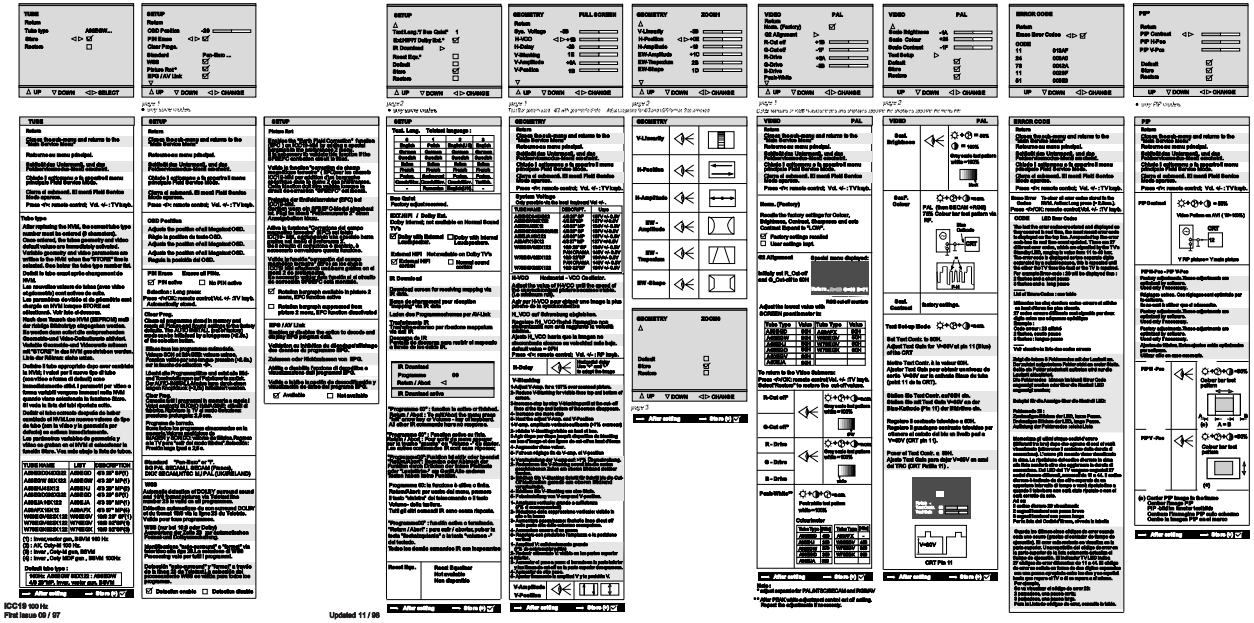
Bargraph
Barographe de réglage
Balkgraph
Barra grafica di regolazione
Barra gráfica del ajuste

Enable a function
Case de validation - Fonction visible à "cocher"
Zum Implementieren einer Funktion
Per visionare la funzione
Activar una función

Navigation inside the Service Mode
Navigation dans le Service Mode
Suche im Service Modi
Cursore del Service Mode

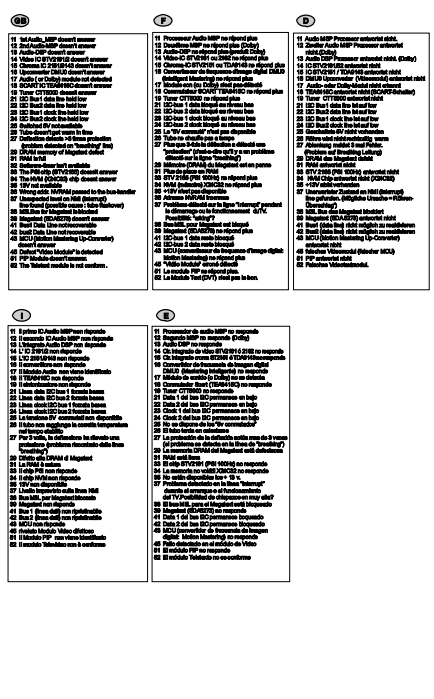
ICC19 100 Hz
First issue 09 / 97

ALIGNMENT PROCEDURE - PROCESSUS DE REGLAGES - ABGLEICH - VISUALIZZAZIONE DEL VALORE DI REGOLAZIONE - PROCEDIMIENTO DE ALINEACION



ICC19 100 Hz
First issue 09 / 97

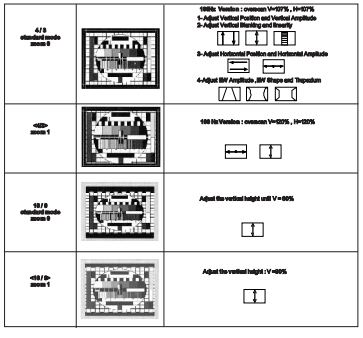
ERROR CODES



GEOMETRY MODE ALIGNMENT - 100Hz VERSION

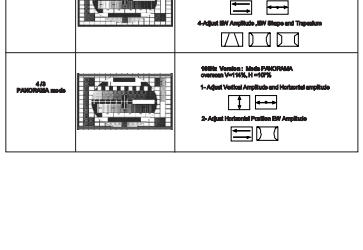
4/3 picture tube

Signal : 4/3 test pattern

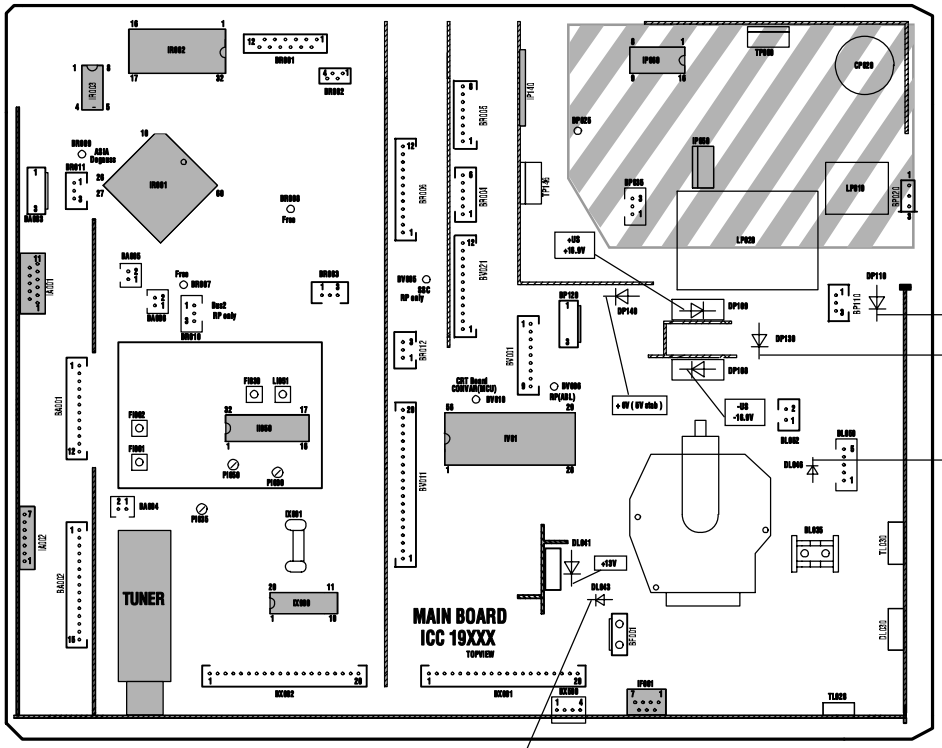

4 / 3
standard mode
zoom 0
100Hz Version : common V=107% , H=107%
1- Adjust Vertical Position and Vertical Amplitude
2- Adjust Vertical Bowing and linearity
3- Adjust Horizontal Position and Horizontal Amplitude
4- Adjust BW Amplitude ,BW Shape and Trapezium
100 Hz Version : common V=125% , H=125%
Adjust the vertical height until V = 80%
Adjust the vertical height : V =95%

16/9 picture tube

Signal : 4/3 test pattern


16 / 9
elargi mode
zoom 0
4/3
PANORAMA mode
100Hz Version : common V=107% , H =107%
1- Adjust Vertical Position and Vertical amplitude
2- Adjust Vertical Bowing and linearity
3- Adjust Horizontal Position and Horizontal amplitude
4- Adjust BW Amplitude ,BW Shape and Trapezium
100Hz Version : Mode PANORAMA
common V=116% , H =107%
1- Adjust Vertical Amplitude and Horizontal amplitude
2- Adjust Horizontal Position BW Amplitude

LOCATION OF CONTROLS - EMPLACEMENT DES REGLAGES - SERVICE LAGEPLAN - POSIZIONE REGOLATORI DI SERVIZIO - SITUACIÓN DE LOS AJUSTES



Do not disconnect modules when they are energized ! Repairs on power supply section are to be carried out only with isolating transformer.

Ne pas retirer les modules lorsqu'ils sont sous tension. N'effectuer les travaux de maintenance sur la partie reliée au secteur (Switch mode) qu'au travers d'un transformateur d'isolement.

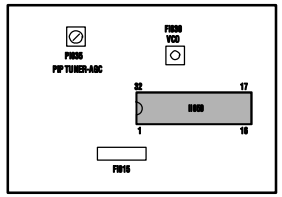
Module nicht bei eingeschaltetem Gerät entfernen ! Servicearbeiten am Netzteil nur unter Verwendung eines Regeltrenntrafos durchführen.

Non scollegare i moduli quando sono alimentati ! effettuare riparazioni sulla sezione alimentatore solo con transformatore separatore.

No desconectar los módulos cuando están activados ! Las reparaciones en la sección de alimentación de energía deben ser ejecutadas solamente con un transformador de separacion.

Part of Board connected to mains supply.
Partie du châssis reliée au secteur.
Primärseite des Netzteils
Parte del pannello collegato alla rete di alimentazione
Parte del chasis conectada a la red

RF-IF PART FEP 19100 PIP



ADJUSTMENTS - REGLAGES - EINSTELLUNGEN - REGOLAZIONE - AJUSTES

U Sys	SERVICE MODE	Standard TV - Settings : OMA Position TV to AV1 : Black test pattern	V= DP 110	TUBE NAME / DESCRIPTION / Usys jumper / Usys A59EGD048X322 / 4/3 25" SF / JP914 / 137V +/- 0.5V A68EGW83X122 / 4/3 28"MP / JP914 / 137V +/-0.5V A68EHJ43X12 / 4/3 28" MP / JP915 / 134V +/- 0.5V A68EGD038X300 / 4/3 29" SF / JP914 / 137V +/-0.5V A68EGD038X322 / 4/3 29" SF / JP914 / 137V +/-0.5V A80EJA163X122 / 4/3 33" MP / JP914 / 137V +/- 0.5V A90AFX14X12 / 4/3 37" MP / JP914 / 137V =/-0.5V W66EGV023X122 / 16/9 28" SF / JP915 / 134V +/- 0.5V W66EGV023X122 / 16/9 28" SF (PANORAMA) / JP917 / 140V +/- 0.5V W76EGV023X122 / 16/9 32"SF / JP915 / 134V+/- 0.5V W76EGV023X122 / 16/9 32"SF (PANORAMA) / JP917 / 140V+/- 0.5V W76EGX023X122 / 16/9 32"SF / JP915 / 134V +/- 0.5V
IF Alignment VCO Standard BG	FI030	Switch set to standard BG IF Signal 38.9 MHz (BG) 30 mV G 75Ω TUNER 11 NH01	V= RI078 AFC (uP) 42 IR01	Adjust FI30 / PI54 for 2,5VDC +/-0.1V
VIDEO-LEVEL Alignment	PI030 PI035	Standard Signal (BG / L) 15kHz test pattern 3 mV G 75Ω TV set Antenna	Oscillo. SCART Video output	Adjust PI030 : standard BG Adjust PI035 : standard L for V = 0,7 Vpp (Black/white level)
U G2 METHOD 1 Measurement method	G2 potentiometer	Standard TV - Settings : OMA Position TV to AV1 : Black test pattern	highest output CRT 1910X (100Hz) : R signal : IB01 Pin 15 G signal : IB03 Pin 15 B signal : IB02 Pin 15	V 1 - Adjust VG2 : V= 160V +/- 5 V 2 - Adjust Focus 3 - Adjust VG2 : V= 160V +/- 3V
METHOD 2 Cut-off counter method SERVICE MODE	SERVICE MODE	Standard TV - Settings : OMA Position No test pattern (generated by internal text processor).		Initially set R_Cut-off and G_Cut-off to 80H. Select G2 Alignment in Service Mode Adjust the lowest value to: Select "Restore" in Service Mode and press "OK" to restore the cut-off values. Tube Type / Value A66EGW 60H A66EHJ A59EGD 50H A68EGD 50H A68EGV 50H A80EJA W66EGV 50H W76EGV 60H W76EGX 60H A90AFX 50H
FOCUS	FOCUS	Test pattern (standard values)		Sharp picture

RF / IF PART FEP 19100 PIP

IF Alignment VCO Standard BG	FI030	Switch set to standard BG IF Signal 38.9 MHz (BG) 30 mV G 75Ω PIP TUNER 11 NH002	V= RI077 AFC 23 II050	Adjust FI30 for 2,5VDC +/-0.1V
TUNER-AGC	PI050	Signal 210.25 MHz 3 mV G 75Ω TV set Antenna Input PIP Tuner	11/NH002 IF output Tuner Spectrum Analizer	Adjust PI050 : Maximum level Reduce level with PI50 about 10dB.

SERVICE MODE (GB) | MODE SERVICE (F) | SERVICE - MODE (D) | SERVICE - MODE (I) | MODO SERVICIO (E)

I - ENTER/EXIT SERVICE MODE - ENTREE/SORTIE DU MODE SERVICE - EIN-/AUSTIEG SERVICE MODE - ACCESSO/USCITA ALLA/DALLA FUNZIONE - ENTRADA/SALIDA MODO SERVICIO

1 ACCESSING SERVICE MODE

TV Control Panel Access

- Turn "Off" the TV using the ON/OFF button.
- Press the FR- and VOL- buttons ,hold them down and switch "On" the TV with the ON/OFF button.
- After the normal switch on time the main service menu appears on the screen.

Note :
In service mode :
- *The child lock function is re-initialized.*
- *The lock function (PIN Number) is ignored.*
- *Clear any wake-up/sleep timers.*
- *Pin 8 of the scart plug has to be ignored.*
- *AV- Link VSS detection , EPG and Teletext have to be disabled.*
- *Automatic stand-by functions, in case of no antenna signal have to be disabled.*
- *Contrast, colour, brightness : factory settings.*
- *Sharpness : middle (normal)*
- *Contrast expander to low.*
- *Install Mode disabled.*
- *Default format and zoom..*

Accès avec la touche MIA

- Arrêter le TV avec la touche MIA.
- Tout en appuyant sur les touches FR - et VOL - , mettre le TV en service à l'aide de la touche MIA.
- Maintenir enfoncées les touches FR - et VOL -.
  Le menu suivant apparît.

Note :
En mode service:
- *Le verrouillage parental est effacé (réinitialisé).*
- *La fonction de verrouillage (PIN number) est ignorée.*
- *La programmation des heures réveil/minuterie est annulée.*
- *Possibilité de passer en mode service avec commutation lente active.*
- *AV- Link , la détection VSS, l'EPG et Teletext doivent être désactivés.*
- *La fonction de stand-by automatique en cas d'absence de signal d'antenne n'est pas validée.*
- *Les valeurs de réglages usine sont affectées au contraste, à la couleur et à la netteté.*
- *Le contour est accru à sa valeur moyenne.*
- *L'expansion contraste est au niveau bas.*
- *Le mode d'installation et l'ambiance «Light sensor» ne sont pas validés.*
- *Zoom et format ignorés.*

Zugriff über die Taste der Fernbedienung

- Fernbedienung über den EIN/AUS - Taste ausschalten.
- Gleichzeitig die Tasten FR- und VOL- drücken und den TV über die EIN/AUS-Taste einschalten.
- Die Tasten FR- und VOL - gedrückt halten.

Anmerkung :
Im SERVICE MODE :
- *wird die Sperrfunktion (PIN-Nummer) ignoriert und die Kindersicherung gelöscht (reinitialisiert).*
- *wird die Eltern- und Abschaltzeitgeber gelöscht.*
- *wird der SCART - Schaltspannung ignoriert.*
- *wird die AV- Link VSS, EPG und Teletext gesperrt.*
- *wird die Automatische Abschaltung bei fehlendem Antennensignal gesperrt.*
- *werden Kontrast, Farbe und Helligkeit auf standardmäßig gesetzt.*
- *wird die Bildschärfe auf Mittelstellung (normal) gesetzt.*
- *wird der Kontrast-Expander auf "gering" gesetzt.*
- *wird der Installations Modus gesperrt.*
- *wird das Standardformat bzw. der Standard-Zoom-modus gewählt.*

Accesso al service modo

- Spegnere il TV mediante il pulsante ON/OFF.
- Premere i tasti FR- e VOL- azionando il TV con il pulsante ON/OFF.
- Premere i pulsanti FR - e VOL -.

Note :
Nel service mode:
- *la funzione Blocco (Numero Pin) viene ignorata e la funzione Blocco bambini è reinizializzata.*
- *Cancellato la programmazione sveglia .*
- *Il piedino 8 della scart deve essere ignorato.*
- *I riconoscimenti AV-Link VSS, EPG e televideo devono essere disabilitati.*
- *Funzione automatica di standby, nel caso di mancanza del segnale d'antenna deve essere disabilitata.*
- *Contrasto, colore, luminosità : regolazioni di fabrica.*
- *Nitidezza: media (normale)*
- *Espansore contrasto troppo basso.*
- *Modo Install disabilitato.*
- *Formato default e zoom.*

Acceso panel control TV

- Apague la TV con el botón MARCHA/PARADA.
- Pulse los botones FR - y VOL - y sin soltarlos,pulser la tecla MARCHA/PARADA.
- Libere los botones FR - y VOL - .

Note :
En modo servicio:
- *Se ignora la función de bloqueo y se inicializa la función "cerradura infantil".*
- *Anula todas las horas programadas .*
- *La patilla 8 del SCART es ignorada .*
- *La detección VSS AV Link, EPG, y Teletxto son desactivados.*
- *El apagado automático en caso de ausencia de señal de antena es desactivado.*
- *El contraste,color y brillo son puestos a los valores de fábrica.*
- *la nitidez es puesta al punto medio.*
- *La expansión de contrast al nivel bajo*
- *Modo Instalación es desactivado.*
- *Zoom y formato ignorados.*

2 TEMPORARY EXIT FROM SERVICE MODE

- Press Exit on the Remote control.
- Everyday use menu can be accessed via Menu button.

- Field Service Menu can be re-entered via Blue button.

2 SORTIE TEMPORAIRE DU MODE SERVICE

- Utiliser la touche Exit de la télécommande.
- Le menu utilisateur peut être accessible via la touche «Menu».

- Pour entrer à nouveau dans le mode service utiliser la touche bleue.

2 VORÜBERGEHENDES VERLASSEN DES SERVICE MODE

- Auf der Fernbedienung EXIT drücken.
- Mit der Taste Menü gelangen Sie zum Menü Übersicht

- Mit der blauen Taste gelangen sie zum Service-Menü.

2 USCITA TEMPORANEA DAL SERVICE MODE

- Premere Exit sul telecomando.
- Al menu di uso quotidiano si accede attraverso il pulsante Menu.

- È possibile rientrare nel Menu Field Service attraverso il pulsante Blue.

2 SALIDA TEMPORAL DEL MODO SERVICIO

- Pulse Salir en el mando a distancia
- Con el botón Menu puede acceder al menú de uso cotidiano.

- Puede entrar el Menú Servicio con el botón azul.

3 EXITING FROM SERVICE MODE

Remote Control | TV control panel | on/off key or Stand-by

- Go to the point QUIT in the Field service Mode main menu.
- Press «>, «OK» or «> button
- Press «VOL.+»button
- Stand-by function or «off» with on/off key.
- TV mode.

Values or adjustments are no stored before exiting from service mode will not be written into the NVM.

3 SORTIE DEFINITIVE DU MODE SERVICE

télécommande | clavier du téléviseur | Inter MIA ou Stand-by

- Aller au point «QUIT» dans le menu principal du mode service.
- Appuyer sur «>», «OK» ou «>
- Appuyer sur «VOL.+»
- Fonction Stand-by ou «off» par MIA.
- Mode TV.

Les valeurs ou réglages non mémorisées avant le sortie ne seront pas écrites en NVM.

3 ENDGÜLTIGES VERLASSEN DES SERVICE MODE

Fernbedienung | TV-Bedienfeld | EIN /Aus - Taste

- Wenn der Zeiger im Hauptmenü des Service-Modus auf BEENDEN steht
- Taste «>, «OK» oder «>»drücken
- Taste «VOL+» drücken
- Mit Standby-Funktion oder EIN/AUS - taste ausschalten
- TV-Modus

Werte und Einstellungen, die nicht vor dem Verlassen des Service-Modes gespeichert werden, werden nicht in den Permanentspeicher überschrieben.

3 USCIRE DAL SERVICE MODE

telecomando | Pannello comando TV | Tasto on/off di

- Andare al punto QUIT nel Modo Field service del Menu principale
- Premere «>, «OK» o «>
- Premere «VOL.+»
- Funzione Stand-by o «off» con il tasto on/off
- Modo TV.

Valori o regolazioni non vengono memorizzati prima di uscire dal Modo service e non vengono scritti nell'NVM.

3 SALIDA DEL MODO SERVICIO

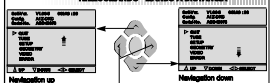
telecomando | Panel de control TV | Tecla on/off de

- Vaya al punto QUIT del menú principal de modo Servicio
- Pulse «>, «OK» o «>
- Pulse el botón«VOL.+»
- Función Stand-by o desconexión (off) con tecla on/off.
- Modo TV.

Los valores o ajustes no se guardan antes de salir del modo servicio y no se escriben en el NVM

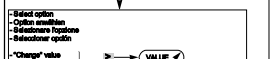
II - NAVIGATION INSIDE THE SERVICE MODE - DEPLACEMENT DANS LE MODE SERVICE - SUCHE IN SERVICE MODE - OPZIONI NEL SERVICE MODE - BUSQUEDA EN MODO SERVICIO

1 REMOTE CONTROL - TELECOMMANDE - FERNBEDIENUNG - TELECOMANDO - MANDO A DISTANCIA

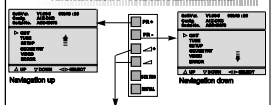


- Select option
- Option anwählen
- Sélectionner l'option
- Seleccionar opción

- "Change" value
- Wert "ändern"
- "Cambiare" valore
- "Cambiar" valor

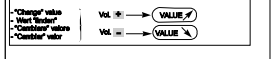


2 TV CONTROL PANEL - CLAVIER TV - TASTATUR DES FERNSEHGERÄTS - COMANDI DEL TELEVISORE - MANDO DEL TELEVISOR



- Select option
- Option anwählen
- Sélectionner l'option
- Seleccionar opción

- "Change" value
- Wert "ändern"
- "Cambiare" valore
- "Cambiar" valor



Changing page - Changement de page - Seitenwechsel - Cambiare Pagina - Cambio de página

End of page - Fin de page - Am Seitenende - Fine della pagina - Fin de página

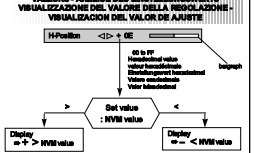
Beginning of Page - Début de page - Am Seitenanfang - Inizio della pagina - Comienzo de página

< ∇ >
Indicates a following page - Signifie qu'une page suit - Bedeutet, daß eine Seite folgt - Indica una pagina seguente - Indica una página siguiente

< Δ >
Indicates a preceding page - Signifie qu'une page précède - Bedeutet, daß eine Seite vorangeht - Indica una pagina precedente - Indica una página precedente

- The menu turns the page when the cursor reaches the arrow.
- Amener le curseur sur la flèche pour tourner la page - Der Cursor muß auf den Pfeil gebracht werden, um eine Seite umzublättern - Il cursore deve raggiungere la freccia per cambiare pagina - El cursor debe llegar a la flecha para pasar a la página siguiente o anterior
- Il curseur su < ∇ >, < Δ > cambia pagina.
- Cursor en < ∇ >, < Δ > cambia las páginas

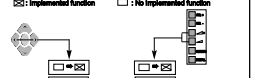
3 DISPLAYING THE VALUE OF THE SETTING - AFFICHAGE DES VALEURS - ANZEIGE DES EINSTELLUNGSWERTS - VISUALIZZAZIONE DEL VALORE DELLA REGOLAZIONE - VISUALIZACION DEL VALOR DE AJUSTE



4 TOGGLE FUNCTIONS - VALIDATION DES FONCTIONS - EIN-UND AUSSCHALT FUNKTIONEN - FUNZIONI DI COMMUTAZIONE - FUNCION CONMUTACION

To enable a function check (tick) ☒ the box.
Pour valider une fonction cocher ☒ la case correspondante
Zum Implementieren einer Funktion das Kontrollkästchen ☒ anklicken (ankreuzen)
Per implementare una funzione di verifica, (visto) ☒ la casella
Para poner en funcionamiento una función verifique (señale) ☒ la casilla

☒ : Implemented function ☐ : No implemented function



5 STORING VALUES IN MEMORY - MEMORISATION DES VALEURS - SPEICHERN DER WERTE - MEMORIZZARE I VALORI - VALORES ALMACENADOS EN LA MEMORIA

After setting, the values are stored in NVM.
Après réglages les valeurs sont mémorisées en NVM.
Nach den Einstellen werden die Werte im NVM gespeichert.
Dopo la regolazione i valori vengono memorizzati in NVM.
Después del ajuste, los valores son almacenados en NVM

The box ☐ becomes ☒
During alignment, values are temporarily stored in RAM.
En cours d'alignement les valeurs sont mémorisées temporairement en RAM
Während des Abgleiche werden die Werte vorübergehend im RAM gespeichert
Durante l'allineamento i valori vengono memorizzati provvisoriamente sulla RAM
Durante el alineamiento, los valores son almacenados temporalmente en RAM

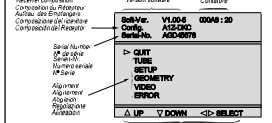
Store ⇒ Copies RAM values into NVM
Copie la valeur RAM en NVM
Kopieren des Werts von RAM nach NVM
Copiare i valori RAM in NVM
Copiar valores RAM en NVM

Restore ⇒ Copies all values from NVM into RAM.
Copie toutes les valeurs des données NVM en RAM
Kopiert alle NVM-Datenwerte in den RAM
Copiare tutti i valori da NVM sulla RAM
Copia todos los valores de NVM a RAM

ROM Default ⇒ All the default values of a page in use are stored in RAM.
L'ensemble des valeurs par défaut d'une page courante est chargé en RAM.
Sämtliche Standardwerte der aktuellen Seite werden im RAM geladen
Tutti i valori di default di una pagina in uso vengono memorizzati sulla RAM
Todos los valores por defecto de la página en curso están almacenados en RAM.

III - LITE-MENU FOR FIELD SERVICE MODE - MENUS DU MODE SERVICE

1 MAIN MENU - MENU PRINCIPAL



Navigation visible the Service Mode
Navigation dans le Service Mode
Suche im Service Modi
Cursore del Service Mode
Búsqueda en el Modo Servicio

TV CONFIGURATION - CONFIGURATION DU TV - GERÄTEKONFIGURATION - CONFIGURAZIONE DEL TV - CONFIGURACIÓN Y TV

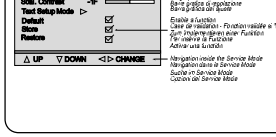
Config. A02-DKC

Character 1 : Tube type : «A» 4/3 , «W» =16/9
Character 2 : Chassis type : «B» = 90Hz, «1»= 100 Hz
Character 3 : Zoom available : «Z»=yes, «-»=not
Character 4 : Ambient Sensor : «S»= detected, «-»= not
Character 5 : Dolby : «D»=detected, «-»= not
Character 6 : AV Link detected : «K»=IR link detected, «-»= not
Character 7 : Password mode: «C»= Password stored, «-»= not

TIME COUNTER - COMPTEUR DE TEMPS - ZÄHLER - CONTATORE - CONTADOR

The counter indicates the TV's number of service hours it counts from to 0 to 65535 hours. The display is hexadecimal.
Le compteur de temps indique le nombre d'heures de service de TV. Il compte de 0 à 65535 heures. L'affichage est en hexadécimal.
Der Zähler zeigt an, wieviele Stunden der Fernseher in Betrieb ist. Die Anzeige ist hexadezimal.
Il contatore indica il numero di ore di servizio del TV. Può contatore da 0 a 65535. La visualizzazione è esadecimale.
El contador indica el número de horas de servicio de la TV. Cuenta de 0 a 65535 horas. El visualizador es hexadecimal.

2 SUBMENU - SOUS-MENU



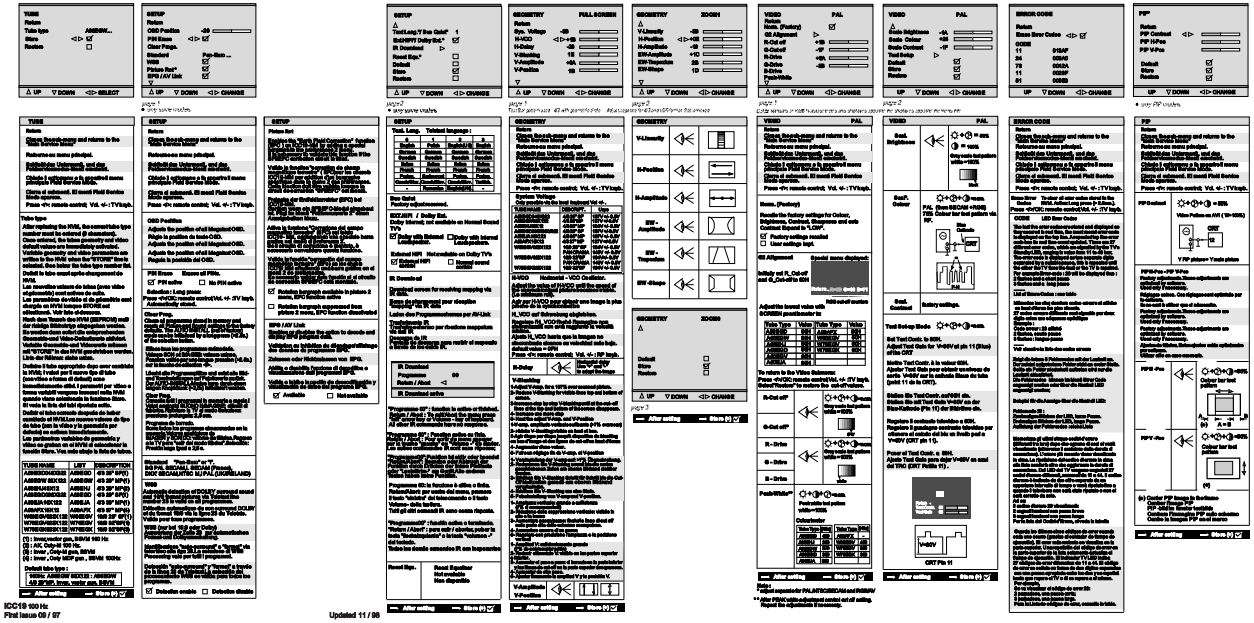
Bargraph
Barographe de réglage
Balkgraph
Barra grafica di regolazione
Barra gráfica del ajuste

Enable a function
Case de validation - Fonction visible à "cocher"
Zum Implementieren einer Funktion
Per visionare la funzione
Activar una función

Navigation inside the Service Mode
Navigation dans le Service Mode
Suche im Service Modi
Cursore del Service Mode

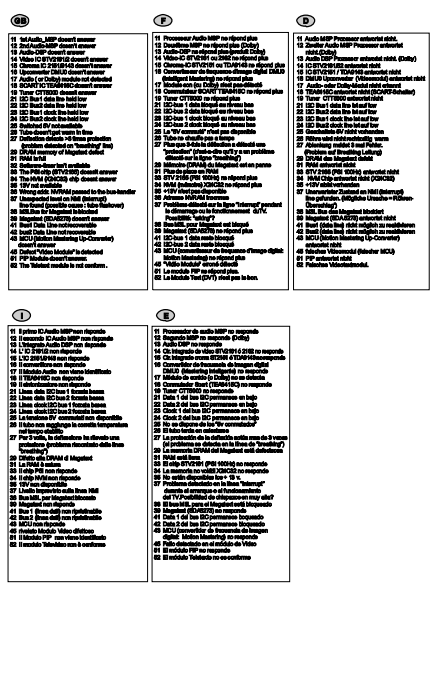
ICC19 100 Hz
First issue 09 / 97

ALIGNMENT PROCEDURE - PROCESSUS DE REGLAGES - ABGLEICH - VISUALIZZAZIONE DEL VALORE DI REGOLAZIONE - PROCEDIMIENTO DE ALINEACION



ICC19 100 Hz
First issue 09 / 97

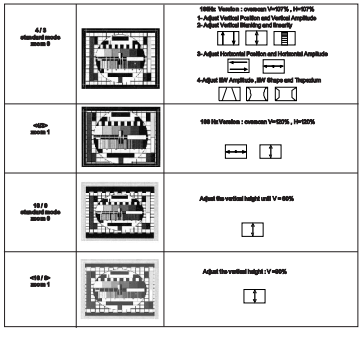
ERROR CODES



GEOMETRY MODE ALIGNMENT - 100Hz VERSION

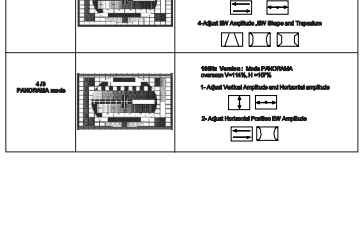
4/3 picture tube

Signal : 4/3 test pattern

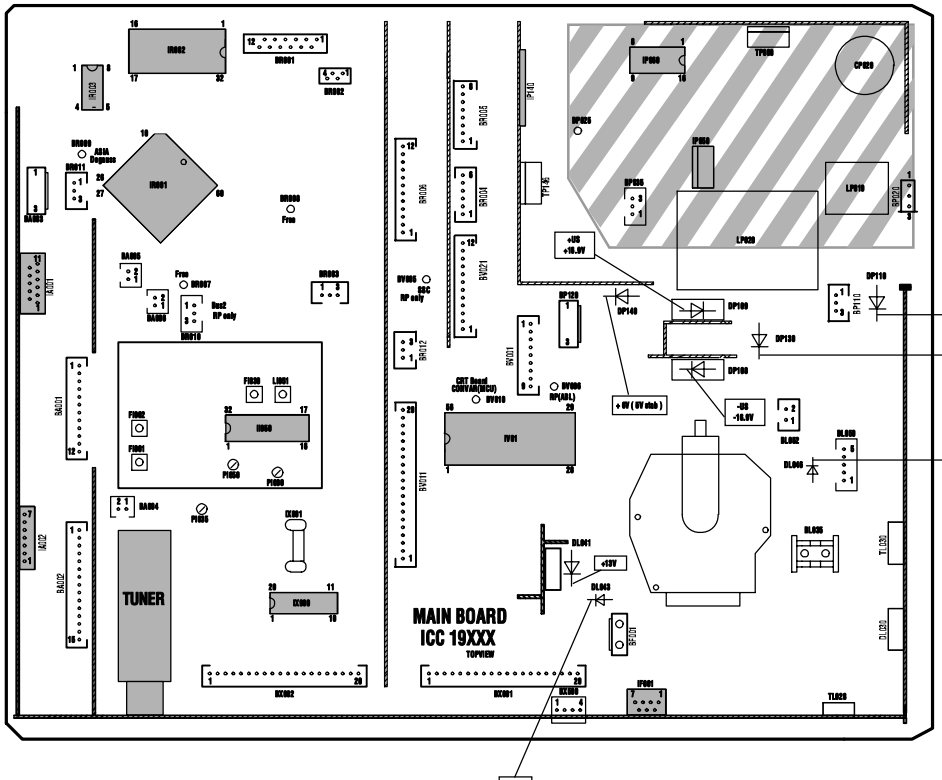

4 / 3
standard mode
zoom 0
100Hz Version : common V=107% , H=107%
1- Adjust Vertical Position and Vertical Amplitude
2- Adjust Vertical Bowing and linearity
3- Adjust Horizontal Position and Horizontal Amplitude
4- Adjust BW Amplitude ,BW Shape and Trapezium
100 Hz Version : common V=125% , H=125%
Adjust the vertical height until V = 80%
Adjust the vertical height : V =95%

16/9 picture tube

Signal : 4/3 test pattern


16 / 9
elargi mode
zoom 0
4/3
PANORAMA mode
100Hz Version : common V=107% , H =107%
1- Adjust Vertical Position and Vertical amplitude
2- Adjust Vertical Bowing and linearity
3- Adjust Horizontal Position and Horizontal amplitude
4- Adjust BW Amplitude ,BW Shape and Trapezium
100Hz Version : Mode PANORAMA
common V=116% , H =107%
1- Adjust Vertical Amplitude and Horizontal amplitude
2- Adjust Horizontal Position BW Amplitude

LOCATION OF CONTROLS - EMPLACEMENT DES REGLAGES - SERVICE LAGEPLAN - POSIZIONE REGOLATORI DI SERVIZIO - SITUACIÓN DE LOS AJUSTES



Do not disconnect modules when they are energized ! Repairs on power supply section are to be carried out only with isolating transformer.

Ne pas retirer les modules lorsqu'ils sont sous tension. N'effectuer les travaux de maintenance sur la partie reliée au secteur (Switch mode) qu'au travers d'un transformateur d'isolement.

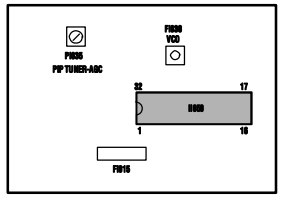
Module nicht bei eingeschaltetem Gerät entfernen ! Servicearbeiten am Netzteil nur unter Verwendung eines Regeltrenntrafos durchführen.

Non scollegare i moduli quando sono alimentati ! effettuare riparazioni sulla sezione alimentatore solo con transformatore separatore.

No desconectar los módulos cuando están activados ! Las reparaciones en la sección de alimentación de energía deben ser ejecutadas solamente con un transformador de separacion.

Part of Board connected to mains supply.
Partie du châssis reliée au secteur.
Primärseite des Netzteils
Parte del pannello collegato alla rete di alimentazione
Parte del chasis conectada a la red

RF-IF PART FEP 19100 PIP



ADJUSTMENTS - REGLAGES - EINSTELLUNGEN - REGOLAZIONE - AJUSTES

U Sys	SERVICE MODE	Standard TV - Settings : OMA Position TV to AV1 : Black test pattern	V= DP 110	TUBE NAME / DESCRIPTION / Usys jumper / Usys A59EGD048X322 / 4/3 25" SF / JP914 / 137V +/- 0.5V A68EGW83X122 / 4/3 28"MP / JP914 / 137V +/-0.5V A68EHJ43X12 / 4/3 28" MP / JP915 / 134V +/- 0.5V A68EGD038X300 / 4/3 29" SF / JP914 / 137V +/-0.5V A68EGD038X322 / 4/3 29" SF / JP914 / 137V +/-0.5V A80EJA163X122 / 4/3 33" MP / JP914 / 137V +/- 0.5V A90AFX14X12 / 4/3 37" MP / JP914 / 137V =/-0.5V W66EGV023X122 / 16/9 28" SF / JP915 / 134V +/- 0.5V W66EGV023X122 / 16/9 28" SF (PANORAMA) / JP917 / 140V +/- 0.5V W76EGV023X122 / 16/9 32"SF / JP915 / 134V+/- 0.5V W76EGV023X122 / 16/9 32"SF (PANORAMA) / JP917 / 140V+/- 0.5V W76EGX023X122 / 16/9 32"SF / JP915 / 134V +/- 0.5V
IF Alignment VCO Standard BG	FI030	Switch set to standard BG IF Signal 38.9 MHz (BG) 30 mV G 75Ω TUNER 11 NH01	V= RI078 AFC (uP) 42 IR01	Adjust FI30 / PI54 for 2,5VDC +/-0.1V
VIDEO-LEVEL Alignment	PI030 PI035	Standard Signal (BG / L) 15kHz test pattern 3 mV G 75Ω TV set Antenna	Oscillo. SCART Video output	Adjust PI030 : standard BG Adjust PI035 : standard L for V = 0,7 Vpp (Black/white level)
U G2 METHOD 1 Measurement method	G2 potentiometer	Standard TV - Settings : OMA Position TV to AV1 : Black test pattern	highest output CRT 1910X (100Hz) : R signal : IB01 Pin 15 G signal : IB03 Pin 15 B signal : IB02 Pin 15	V 1 - Adjust VG2 : V= 160V +/- 5 V 2 - Adjust Focus 3 - Adjust VG2 : V= 160V +/- 3V
METHOD 2 Cutoff counter method SERVICE MODE	SERVICE MODE	Standard TV - Settings : OMA Position No test pattern (generated by internal text processor).		Adjust R-Cut off and G-Cut-off to 80H temporary. Select G2 Alignment in Service Mode Adjust the lowest value to: Select "Restore" in Service Mode and press "OK" to restore the cut-off values. Tube Type / Value A66EGW 60H A66EHJ A59EGD 50H A68EGD 50H A68EGV 50H A80EJA W66EGV - W76EGV 50H W76EGX 60H A90AFX 50H
FOCUS	FOCUS	Test pattern (standard values)		Sharp picture

RF / IF PART FEP 19100 PIP

IF Alignment VCO Standard BG	FI030	Switch set to standard BG IF Signal 38.9 MHz (BG) 30 mV G 75Ω PIP TUNER 11 NH002	V= RI077 AFC 23 II050	Adjust FI30 for 2,5VDC +/-0.1V
TUNER-AGC	PI050	Signal 210.25 MHz 3 mV G 75Ω TV set Antenna Input PIP Tuner	11/NH002 IF output Tuner Spectrum Analizer	Adjust PI050 : Maximum level Reduce level with PI50 about 10dB.

SERVICE MODE (GB) | MODE SERVICE (F) | SERVICE - MODE (D) | SERVICE - MODE (I) | MODO SERVICIO (E)

I - ENTER/EXIT SERVICE MODE - ENTREE/SORTIE DU MODE SERVICE - EIN-/AUSTIEG SERVICE MODE - ACCESSO/USCITA ALLA/DALLA FUNZIONE - ENTRADA/SALIDA MODO SERVICIO

1 ACCESSING SERVICE MODE

TV Control Panel Access

- Turn "Off" the TV using the ON/OFF button.
- Press the FR- and VOL- buttons ,hold them down and switch "On" the TV with the ON/OFF button.
- After the normal switch on time the main service menu appears on the screen.

Note :
In service mode :
- *The child lock function is re-initialized.*
- *The lock function (PIN Number) is ignored.*
- *Clear any wake-up/sleep timers.*
- *Pin 8 of the scart plug has to be ignored.*
- *AV- Link VSS detection , EPG and Teletext have to be disabled.*
- *Automatic stand-by functions, in case of no antenna signal have to be disabled.*
- *Contrast, colour, brightness : factory settings.*
- *Sharpness : middle (normal)*
- *Contrast expander to low.*
- *Install Mode disabled.*
- *Default format and zoom..*

Accès avec la touche MIA

- Arrêter le TV avec la touche MIA.
- Tout en appuyant sur les touches FR - et VOL - , mettre le TV en service à l'aide de la touche MIA.
- Maintenir enfoncées les touches FR - et VOL -.
  Le menu suivant apparît.

Note :
En mode service:
- *Le verrouillage parental est effacé (réinitialisé).*
- *La fonction de verrouillage (PIN number) est ignorée.*
- *La programmation des heures réveil/minuterie est annulée.*
- *Possibilité de passer en mode service avec commutation lente active.*
- *AV- Link , la détection VSS, l'EPG et Teletext doivent être désactivés.*
- *La fonction de stand-by automatique en cas d'absence de signal d'antenne n'est pas validée.*
- *Les valeurs de réglages usine sont affectées au contraste, à la couleur et à la netteté.*
- *Le contour est accru à sa valeur moyenne.*
- *L'expansion contraste est au niveau bas.*
- *Le mode d'installation et l'ambiance «Light sensor» ne sont pas validés.*
- *Zoom et format ignorés.*

Zugriff über die Taste der Fernbedienung

- Fernbedienung über den EIN/AUS - Taste ausschalten.
- Gleichzeitig die Tasten FR- und VOL- drücken und den TV über die EIN/AUS-Taste einschalten.
- Die Tasten FR- und VOL - gedrückt halten.

Anmerkung :
Im SERVICE MODE :
- *wird die Sperrfunktion (PIN-Nummer) ignoriert und die Kindersicherung gelöscht (reinitialisiert).*
- *wird die Eltern- und Abschaltzeitgeber gelöscht.*
- *wird der SCART - Schaltspannung ignoriert.*
- *wird die AV- Link VSS, EPG und Teletext gesperrt.*
- *wird die Automatische Abschaltung bei fehlendem Antennensignal gesperrt.*
- *werden Kontrast, Farbe und Helligkeit auf standardmäßig gesetzt.*
- *wird die Bildschärfe auf Mittelstellung (normal) gesetzt.*
- *wird der Kontrast-Expander auf "gering" gesetzt.*
- *wird der Installations Modus gesperrt.*
- *wird das Standardformat bzw. der Standard-Zoom-modus gewählt.*

Accesso al service modo

- Spegnere il TV mediante il pulsante ON/OFF.
- Premere i tasti FR- e VOL- azionando il TV con il pulsante ON/OFF.
- Premere i pulsanti FR - e VOL -.

Note :
Nel service mode:
- *la funzione Blocco (Numero Pin) viene ignorata e la funzione Blocco bambini è reinizializzata.*
- *Cancellato la programmazione sveglia .*
- *Il piedino 8 della scart deve essere ignorato.*
- *I riconoscimenti AV-Link VSS, EPG e televideo devono essere disabilitati.*
- *Funzione automatica di standby, nel caso di mancanza del segnale d'antenna deve essere disabilitata.*
- *Contrasto, colore, luminosità : regolazioni di fabrica.*
- *Nitidezza: media (normale)*
- *Espansore contrasto troppo basso.*
- *Modo Install disabilitato.*
- *Formato default e zoom.*

Acceso panel control TV

- Apague la TV con el botón MARCHA/PARADA.
- Pulse los botones FR - y VOL - y sin soltarlos,pulser la tecla MARCHA/PARADA.
- Libere los botones FR - y VOL - .

Note :
En modo servicio:
- *Se ignora la función de bloqueo y se inicializa la función "cerradura infantil".*
- *Anula todas las horas programadas .*
- *La patilla 8 del SCART es ignorada .*
- *La detección VSS AV Link, EPG, y Teletxto son desactivados.*
- *El apagado automático en caso de ausencia de señal de antena es desactivado.*
- *El contraste,color y brillo son puestos a los valores de fábrica.*
- *la nitidez es puesta al punto medio.*
- *La expansión de contrast al nivel bajo*
- *Modo Instalación es desactivado.*
- *Zoom y formato ignorados.*

2 TEMPORARY EXIT FROM SERVICE MODE

- Press Exit on the Remote control.
- Everyday use menu can be accessed via Menu button.

- Field Service Menu can be re-entered via Blue button.

2 SORTIE TEMPORAIRE DU MODE SERVICE

- Utiliser la touche Exit de la télécommande.
- Le menu utilisateur peut être accessible via la touche «Menu».

- Pour entrer à nouveau dans le mode service utiliser la touche bleue.

2 VORÜBERGEHENDES VERLASSEN DES SERVICE MODE

- Auf der Fernbedienung EXIT drücken.
- Mit der Taste Menü gelangen Sie zum Menü Übersicht

- Mit der blauen Taste gelangen sie zum Service-Menü.

2 USCITA TEMPORANEA DAL SERVICE MODE

- Premere Exit sul telecomando.
- Al menu di uso quotidiano si accede attraverso il pulsante Menu.

- È possibile rientrare nel Menu Field Service attraverso il pulsante Blue.

2 SALIDA TEMPORAL DEL MODO SERVICIO

- Pulse Salir en el mando a distancia
- Con el botón Menu puede acceder al menú de uso cotidiano.

- Puede entrar el Menú Servicio con el botón azul.

3 EXITING FROM SERVICE MODE

Remote Control | TV control panel | on/off key or Stand-by

- Go to the point QUIT in the Field service Mode main menu.
- Press «>, «OK» or «> button
- Press «VOL.+»button
- Stand-by function or «off» with on/off key.
- TV mode.

Values or adjustments are no stored before exiting from service mode will not be written into the NVM.

3 SORTIE DEFINITIVE DU MODE SERVICE

télécommande | clavier du téléviseur | Inter MIA ou Stand-by

- Aller au point «QUIT» dans le menu principal du mode service.
- Appuyer sur «>», «OK» ou «>
- Appuyer sur «VOL.+»
- Fonction Stand-by ou «off» par MIA.
- Mode TV.

Les valeurs ou réglages non mémorisées avant le sortie ne seront pas écrites en NVM.

3 ENDGÜLTIGES VERLASSEN DES SERVICE MODE

Fernbedienung | TV-Bedienfeld | EIN /Aus - Taste

- Wenn der Zeiger im Hauptmenü des Service-Modus auf BEENDEN steht
- Taste «>, «OK» oder «>»drücken
- Taste «VOL+» drücken
- Mit Standby-Funktion oder EIN/AUS - taste ausschalten
- TV-Modus

Werte und Einstellungen, die nicht vor dem Verlassen des Service-Modes gespeichert werden, werden nicht in den Permanentspeicher überschrieben.

3 USCIRE DAL SERVICE MODE

telecomando | Pannello comando TV | Tasto on/off di

- Andare al punto QUIT nel Modo Field service del Menu principale
- Premere «>, «OK» o «>
- Premere «VOL.+»
- Funzione Stand-by o «off» con il tasto on/off
- Modo TV.

Valori o regolazioni non vengono memorizzati prima di uscire dal Modo service e non vengono scritti nell'NVM.

3 SALIDA DEL MODO SERVICIO

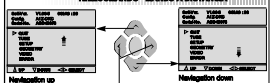
telecomando | Panel de control TV | Tecla on/off de

- Vaya al punto QUIT del menú principal de modo Servicio
- Pulse «>, «OK» o «>
- Pulse el botón«VOL.+»
- Función Stand-by o desconexión (off) con tecla on/off.
- Modo TV.

Los valores o ajustes no se guardan antes de salir del modo servicio y no se escriben en el NVM

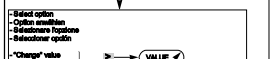
II - NAVIGATION INSIDE THE SERVICE MODE - DEPLACEMENT DANS LE MODE SERVICE - SUCHE IN SERVICE MODE - OPZIONI NEL SERVICE MODE - BUSQUEDA EN MODO SERVICIO

1 REMOTE CONTROL - TELECOMMANDE - FERNBEDIENUNG - TELECOMANDO - MANDO A DISTANCIA

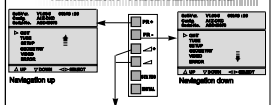


- Select option
- Option anwählen
- Sélectionner l'option
- Seleccionar opción

- "Change" value
- Wert "ändern"
- "Cambiare" valore
- "Cambiar" valor

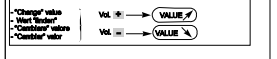


2 TV CONTROL PANEL - CLAVIER TV - TASTATUR DES FERNSEHGERÄTS - COMANDI DEL TELEVISORE - MANDO DEL TELEVISOR



- Select option
- Option anwählen
- Sélectionner l'option
- Seleccionar opción

- "Change" value
- Wert "ändern"
- "Cambiare" valore
- "Cambiar" valor



Changing page - Changement de page - Seitenwechsel - Cambiare Pagina - Cambio de página

End of page - Fin de page - Am Seitenende - Fine della pagina - Fin de página

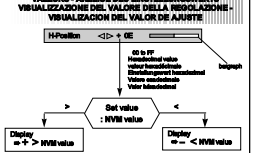
Beginning of Page - Début de page - Am Seitenanfang - Inizio della pagina - Comienzo de página

< ∇ >
Indicates a following page - Signifie qu'une page suit - Bedeutet, daß eine Seite folgt - Indica una pagina seguente - Indica una página siguiente

< Δ >
Indicates a preceding page - Signifie qu'une page précède - Bedeutet, daß eine Seite vorangeht - Indica una pagina precedente - Indica una página precedente

- The menu turns the page when the cursor reaches the arrow.
- Amener le curseur sur la flèche pour tourner la page - Der Cursor muß auf den Pfeil gebracht werden, um eine Seite umzublättern - Il cursore deve raggiungere la freccia per cambiare pagina - El cursor debe llegar a la flecha para pasar a la página siguiente o anterior
- Il curseur su < ∇ >, < Δ > cambia pagina.
- Cursor en < ∇ >, < Δ > cambia las páginas

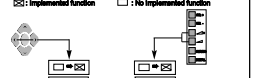
3 DISPLAYING THE VALUE OF THE SETTING - AFFICHAGE DES VALEURS - ANZEIGE DES EINSTELLUNGSWERTS - VISUALIZZAZIONE DEL VALORE DELLA REGOLAZIONE - VISUALIZACION DEL VALOR DE AJUSTE



4 TOGGLE FUNCTIONS - VALIDATION DES FONCTIONS - EIN-UND AUSSCHALT FUNKTIONEN - FUNZIONI DI COMMUTAZIONE - FUNCION CONMUTACION

To enable a function check (tick) ☒ the box.
Pour valider une fonction cocher ☒ la case correspondante
Zum Implementieren einer Funktion das Kontrollkästchen ☒ anklicken (ankreuzen)
Per implementare una funzione di verifica, (visto) ☒ la casella
Para poner en funcionamiento una función verifique (señale) ☒ la casilla

☒ : Implemented function ☐ : No implemented function



5 STORING VALUES IN MEMORY - MEMORISATION DES VALEURS - SPEICHERN DER WERTE - MEMORIZZARE I VALORI - VALORES ALMACENADOS EN LA MEMORIA

After setting, the values are stored in NVM.
Après réglages les valeurs sont mémorisées en NVM.
Nach den Einstellen werden die Werte im NVM gespeichert.
Dopo la regolazione i valori vengono memorizzati in NVM.
Después del ajuste, los valores son almacenados en NVM

The box ☐ becomes ☒
During alignment, values are temporarily stored in RAM.
En cours d'alignement les valeurs sont mémorisées temporairement en RAM
Während des Abgleiche werden die Werte vorübergehend im RAM gespeichert
Durante l'allineamento i valori vengono memorizzati provvisoriamente sulla RAM
Durante el alineamiento, los valores son almacenados temporalmente en RAM

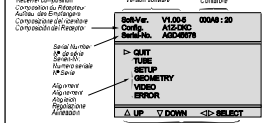
Store ⇒ Copies RAM values into NVM
Copie la valeur RAM en NVM
Kopieren des Werts von RAM nach NVM
Copiare i valori RAM in NVM
Copiar valores RAM en NVM

Restore ⇒ Copies all values from NVM into RAM.
Copie toutes les valeurs des données NVM en RAM
Kopiert alle NVM-Datenwerte in den RAM
Copiare tutti i valori da NVM sulla RAM
Copia todos los valores de NVM a RAM

ROM Default ⇒ All the default values of a page in use are stored in RAM.
L'ensemble des valeurs par défaut d'une page courante est chargé en RAM.
Sämtliche Standardwerte der aktuellen Seite werden im RAM geladen
Tutti i valori di default di una pagina in uso vengono memorizzati sulla RAM
Todos los valores por defecto de la página en curso están almacenados en RAM.

III - LITE-MENU FOR FIELD SERVICE MODE - MENUS DU MODE SERVICE

1 MAIN MENU - MENU PRINCIPAL



Navigation visible the Service Mode
Navigation dans le Service Mode
Suche im Service Modi
Cursore del Service Mode
Búsqueda en el Modo Servicio

TV CONFIGURATION - CONFIGURATION DU TV - GERÄTEKONFIGURATION - CONFIGURAZIONE DEL TV - CONFIGURACIÓN Y TV

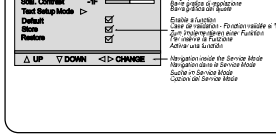
Config. A02-DKC

Character 1 : Tube type : «A» 4/3 , «W» =16/9
Character 2 : Chassis type : «B» = 90Hz, «1»= 100 Hz
Character 3 : Zoom available : «Z»=yes, «-»=not
Character 4 : Ambient Sensor : «S»= detected, «-»= not
Character 5 : Dolby : «D»=detected, «-»= not
Character 6 : AV Link detected : «K»=IR link detected, «-»= not
Character 7 : Password mode: «C»= Password stored, «-»= not

TIME COUNTER - COMPTEUR DE TEMPS - ZÄHLER - CONTATORE - CONTADOR

The counter indicates the TV's number of service hours it counts from to 0 to 65535 hours. The display is hexadecimal.
Le compteur de temps indique le nombre d'heures de service de TV. Il compte de 0 à 65535 heures. L'affichage est en hexadécimal.
Der Zähler zeigt an, wieviele Stunden der Fernseher in Betrieb ist. Die Anzeige ist hexadezimal.
Il contatore indica il numero di ore di servizio del TV. Può contatore da 0 a 65535. La visualizzazione è esadecimale.
El contador indica el número de horas de servicio de la TV. Cuenta de 0 a 65535 horas. El visualizador es hexadecimal.

2 SUBMENU - SOUS-MENU



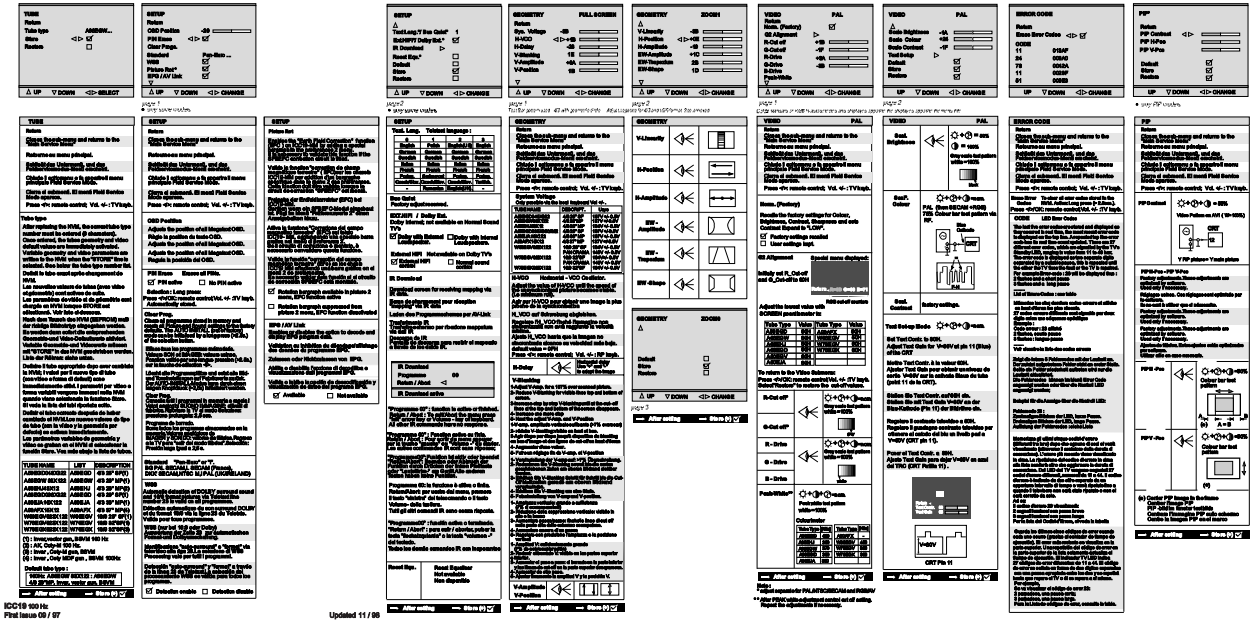
Bargraph
Barographe de réglage
Balkgraph
Barra grafica di regolazione
Barra gráfica del ajuste

Enable a function
Case de validation - Fonction visible à "cocher"
Zum Implementieren einer Funktion
Per visionare la funzione
Activar una función

Navigation inside the Service Mode
Navigation dans le Service Mode
Suche im Service Modi
Cursore del Service Mode

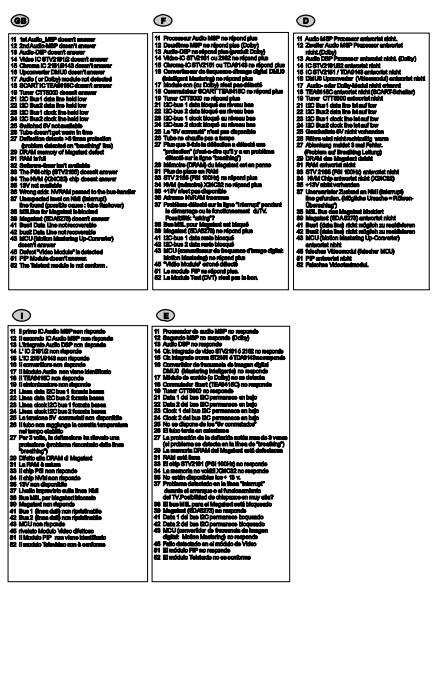
ICC19 100 Hz
First issue 09 / 97

ALIGNMENT PROCEDURE - PROCESSUS DE REGLAGES - ABGLEICH - VISUALIZZAZIONE DEL VALORE DI REGOLAZIONE - PROCEDIMIENTO DE ALINEACION



ICC19 100 Hz
First issue 09 / 97

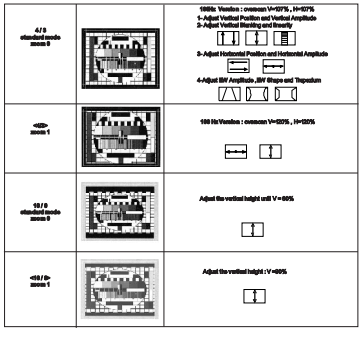
ERROR CODES



GEOMETRY MODE ALIGNMENT - 100Hz VERSION

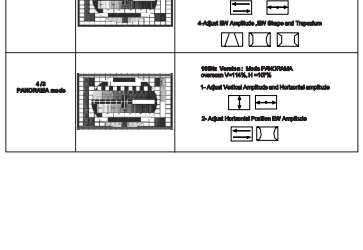
4/3 picture tube

Signal : 4/3 test pattern

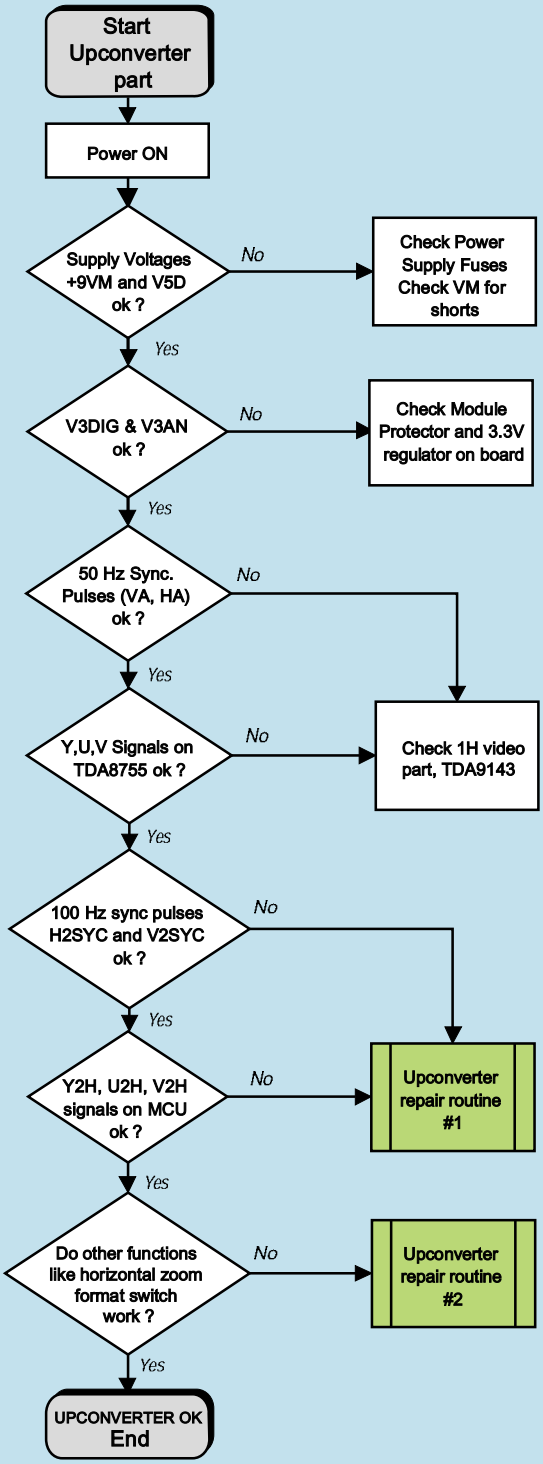

4 / 3
standard mode
zoom 0
100Hz Version : common V=107% , H=107%
1- Adjust Vertical Position and Vertical Amplitude
2- Adjust Vertical Bowing and linearity
3- Adjust Horizontal Position and Horizontal Amplitude
4- Adjust BW Amplitude ,BW Shape and Trapezium
100 Hz Version : common V=125% , H=125%
Adjust the vertical height until V = 80%
Adjust the vertical height : V =95%

16/9 picture tube

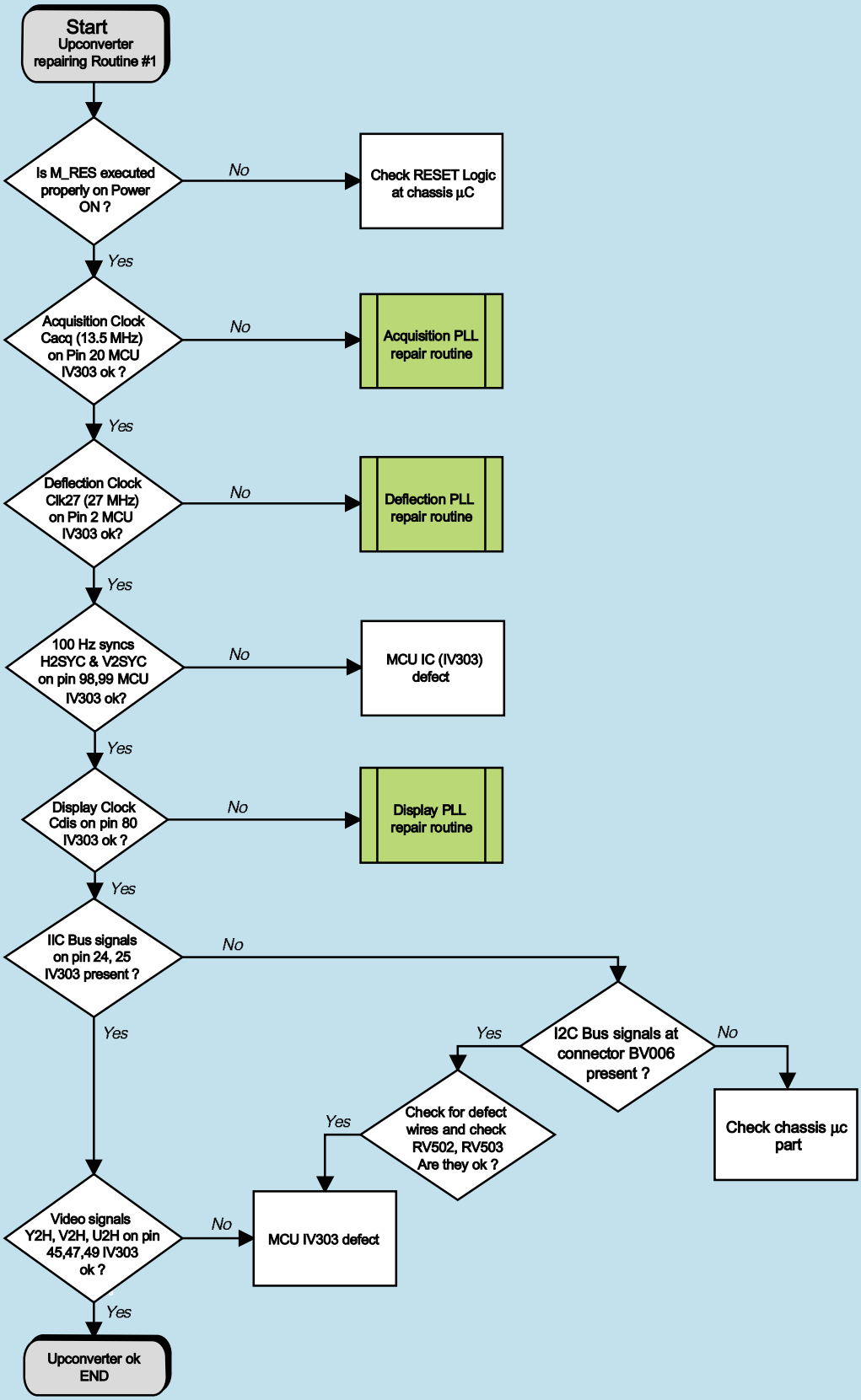
Signal : 4/3 test pattern


16 / 9
elargi mode
zoom 0
4/3
PANORAMA mode
100Hz Version : common V=107% , H =107%
1- Adjust Vertical Position and Vertical amplitude
2- Adjust Vertical Bowing and linearity
3- Adjust Horizontal Position and Horizontal amplitude
4- Adjust BW Amplitude ,BW Shape and Trapezium
100Hz Version : Mode PANORAMA
common V=116% , H =107%
1- Adjust Vertical Amplitude and Horizontal amplitude
2- Adjust Horizontal Position BW Amplitude

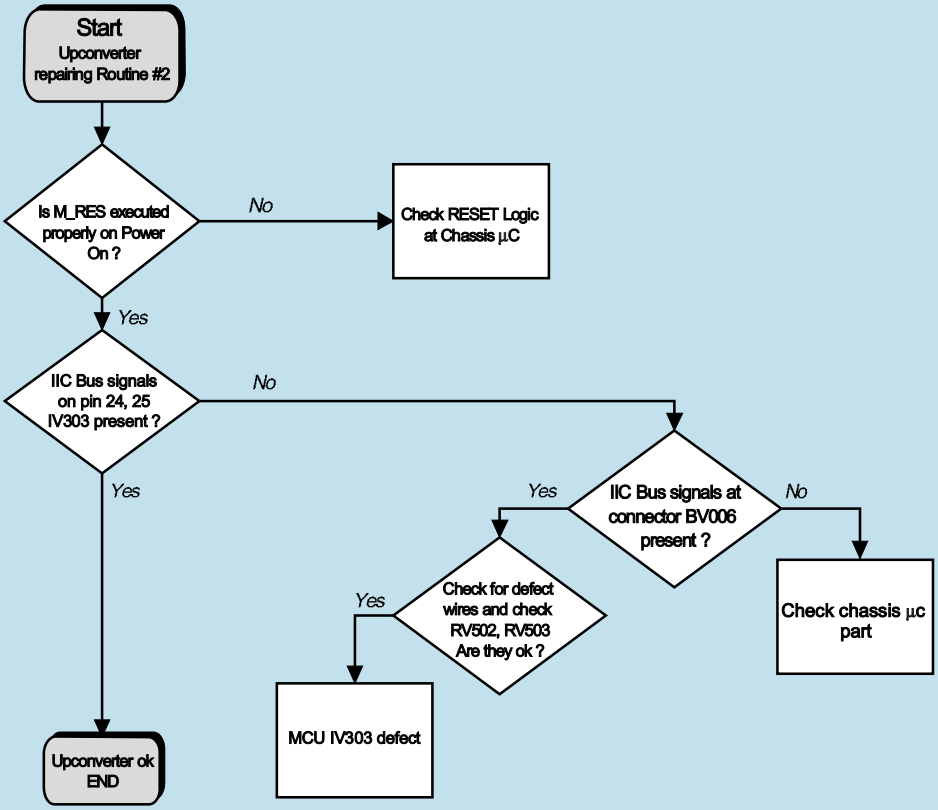
CHECK VIDEO MODULE VM 19200/19400



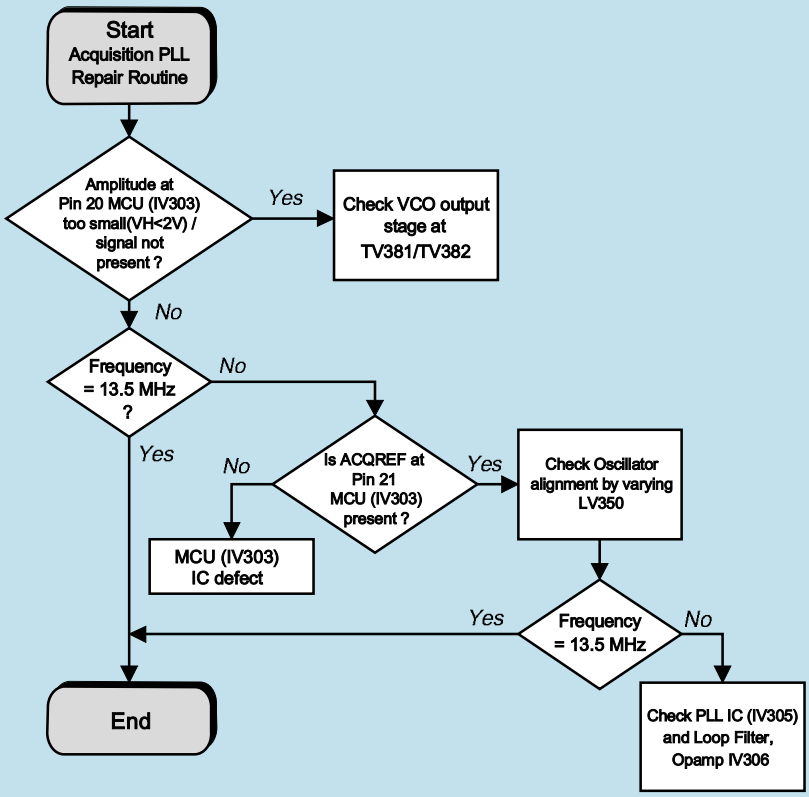
CHECK VIDEO MODULE VM 19200/19400


Start
Upconverter repairing Routine #1
Is M_RES executed properly on Power ON ?
No
Check RESET Logic at chassis µC
Yes
Acquisition Clock Cacq (13.5 MHz) on Pin 20 MCU IV303 ok ?
No
Acquisition PLL repair routine
Yes
Deflection Clock Clk27 (27 MHz) on Pin 2 MCU IV303 ok?
No
Deflection PLL repair routine
Yes
100 Hz syncs H2SYC & V2SYC on pin 98,99 MCU IV303 ok?
No
MCU IC (IV303) defect
Yes
Display Clock Cdis on pin 80 IV303 ok ?
No
Display PLL repair routine
Yes
IIC Bus signals on pin 24, 25 IV303 present ?
No
I2C Bus signals at connector BV006 present ?
Yes
No
Check for defect wires and check RV502, RV503 Are they ok ?
Yes
Check chassis µc part
Yes
Video signals Y2H, V2H, U2H on pin 45,47,49 IV303 ok ?
No
MCU IV303 defect
Yes
Upconverter ok END

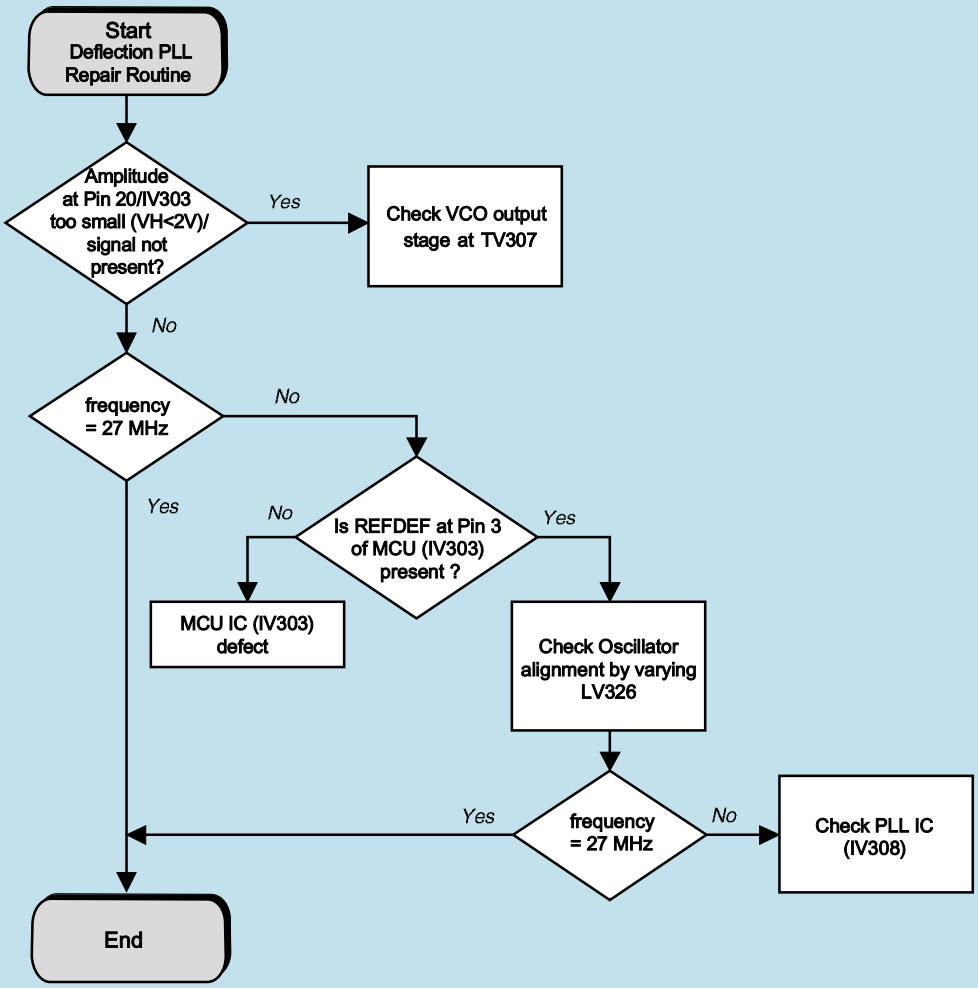
CHECK VIDEO MODULE VM 19200/19400



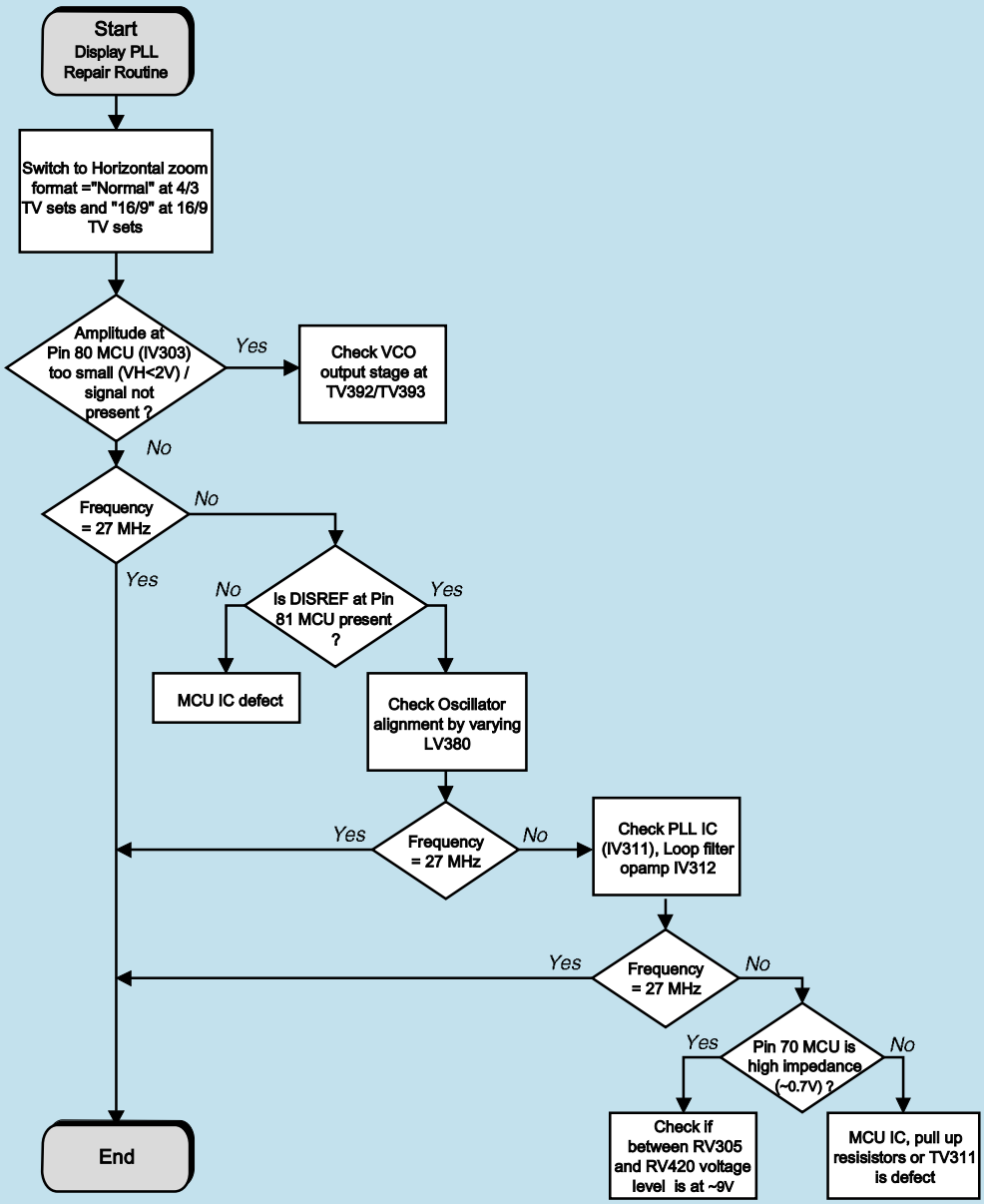
CHECK VIDEO MODULE VM 19200/19400



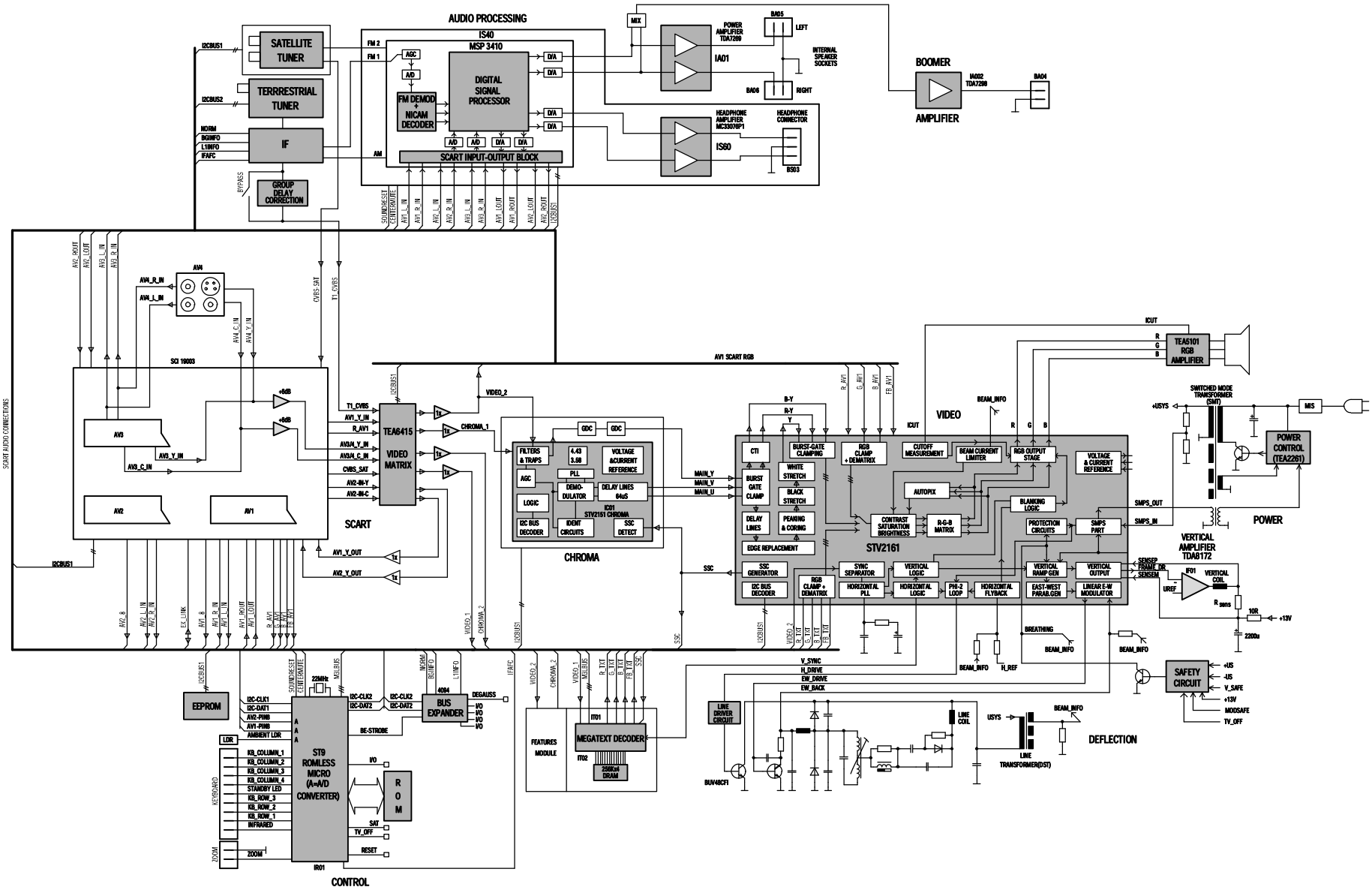
CHECK VIDEO MODULE VM 19200/19400



CHECK VIDEO MODULE VM 19200/19400

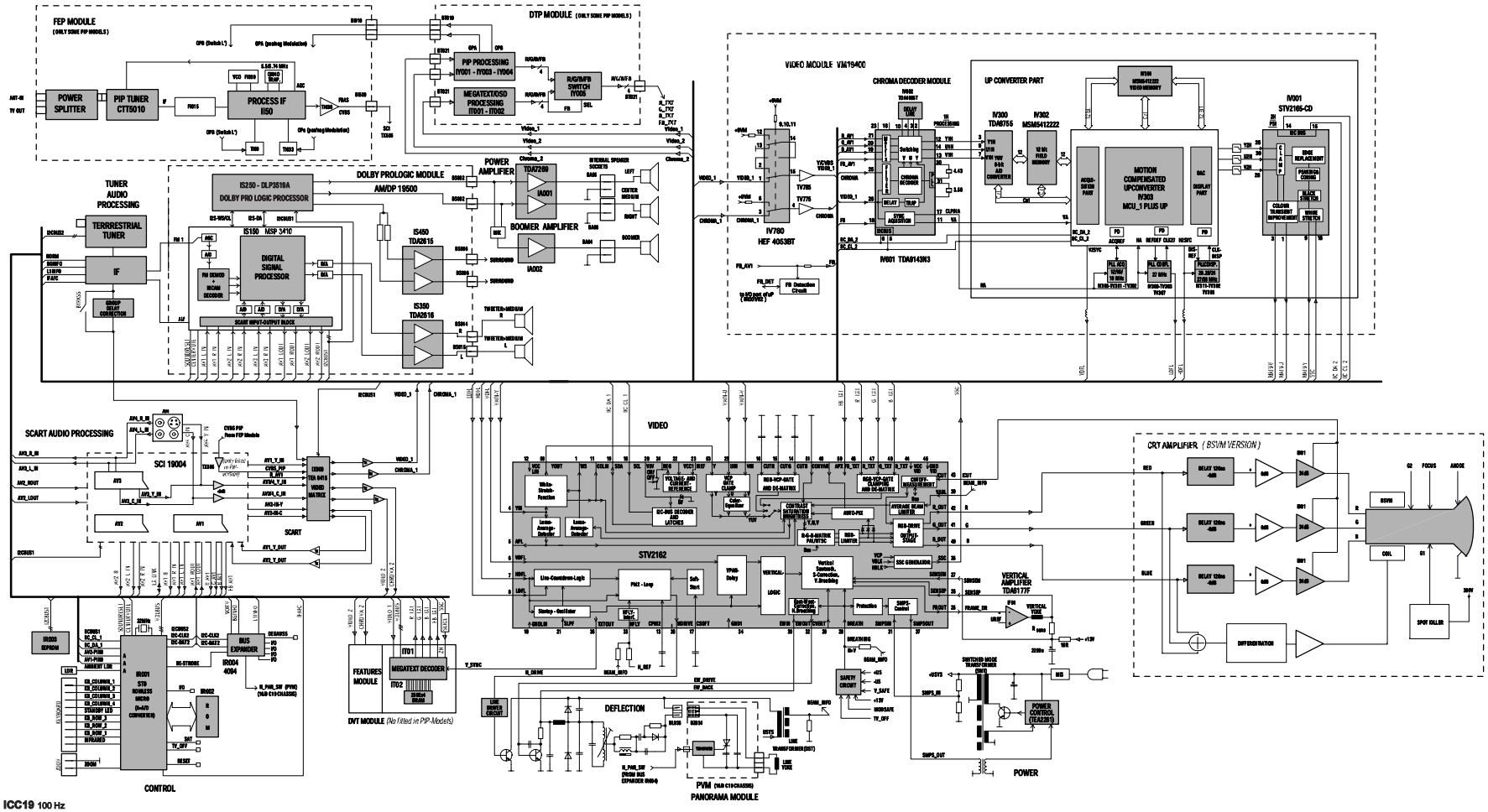

Start
Display PLL
Repair Routine
Switch to Horizontal zoom format ="Normal" at 4/3 TV sets and "16/9" at 16/9 TV sets
Amplitude at Pin 80 MCU (IV303) too small (VH<2V) / signal not present ?
Yes
Check VCO output stage at TV392/TV393
No
Frequency = 27 MHz
No
Yes
Is DISREF at Pin 81 MCU present ?
No
Yes
MCU IC defect
Check Oscillator alignment by varying LV380
Frequency = 27 MHz
Yes
No
Check PLL IC (IV311), Loop filter opamp IV312
Frequency = 27 MHz
Yes
No
Pin 70 MCU is high impedance (~0.7V) ?
Yes
No
Check if between RV305 and RV420 voltage level is at ~9V
MCU IC, pull up resisistors or TV311 is defect
End

BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCI - ESQUEMA DE BLOQUES

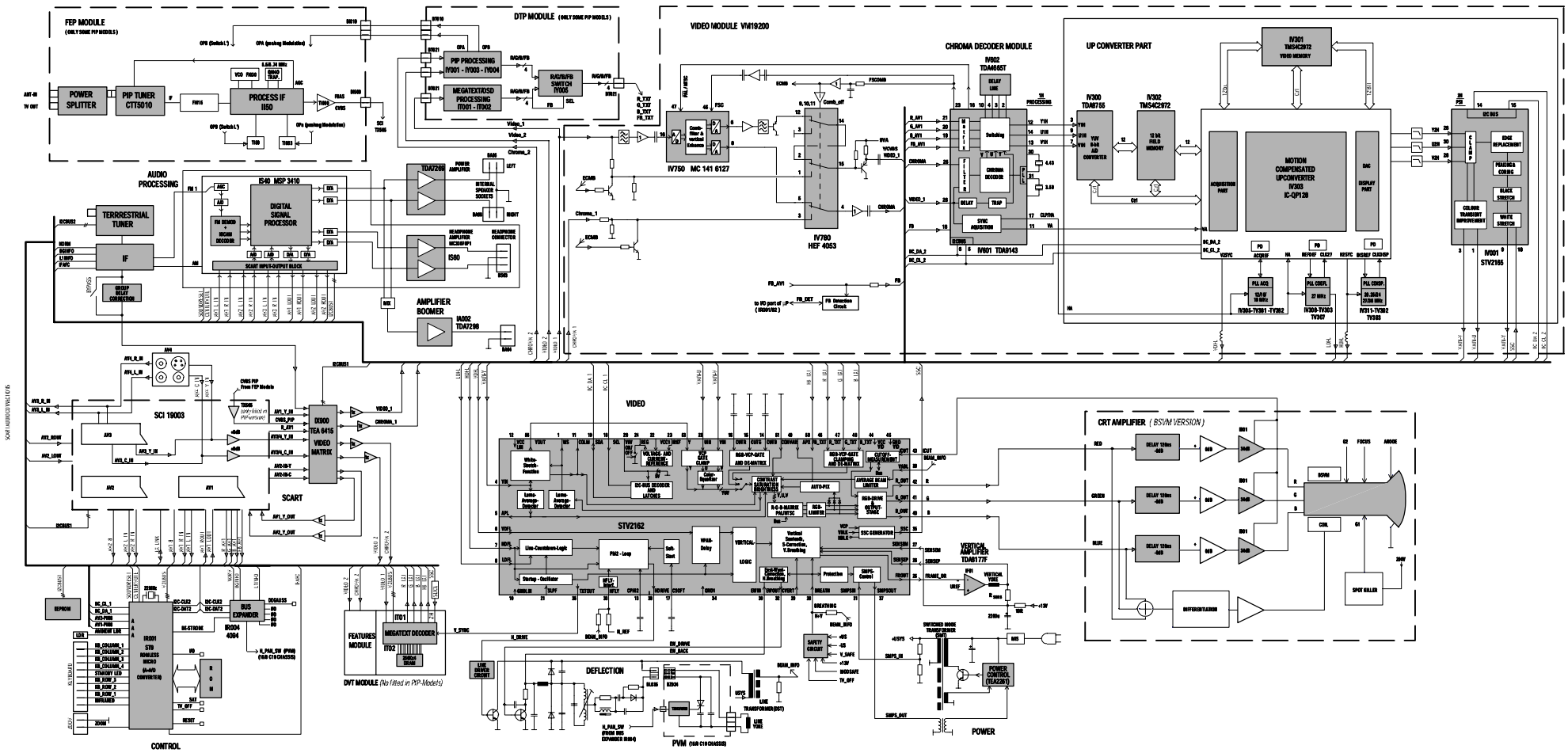


ICC19 50 Hz
First issue 09 / 97

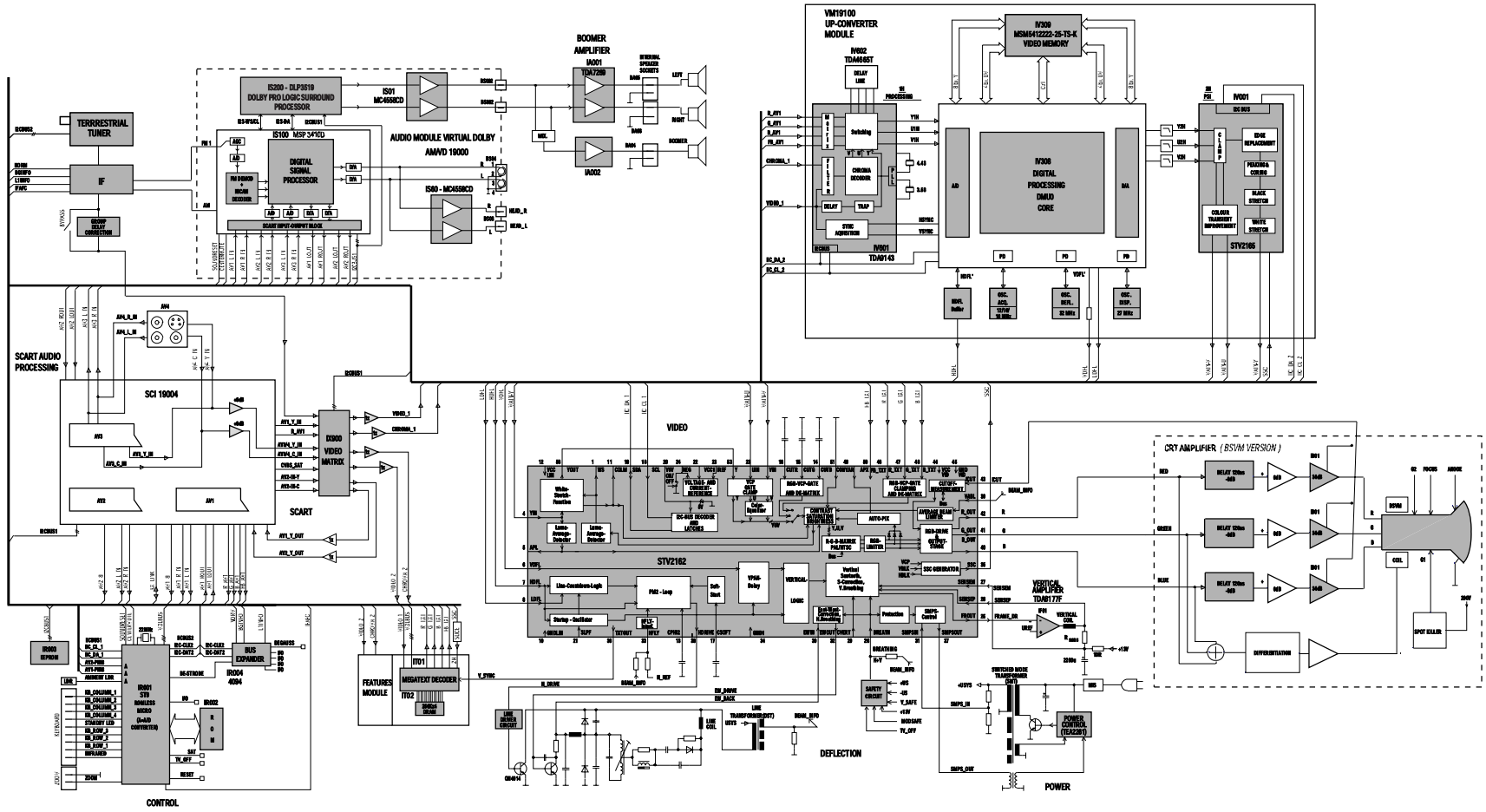
BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCHI - ESQUEMA DE BLOQUES
ICC19 MM 100 Hz - MOTION MASTERING - DOLBY PRO-LOGIC - PIP



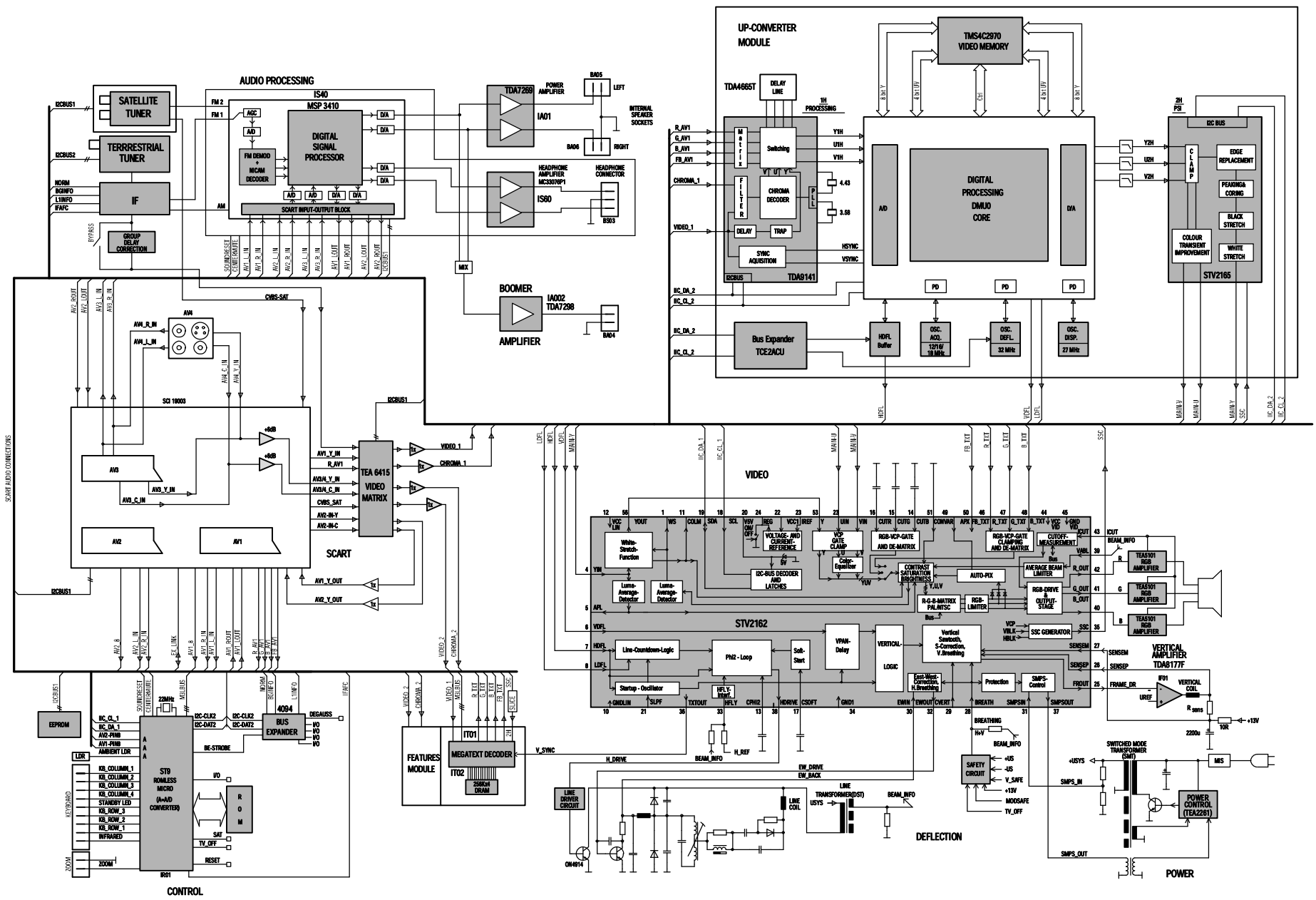
BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCHI - ESQUEMA DE BLOQUES
ICC19 MM 100 Hz - MOTION MASTERING



BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCHI - ESQUEMA DE BLOQUES
ICC19 100 Hz - VIRTUAL DOLBY

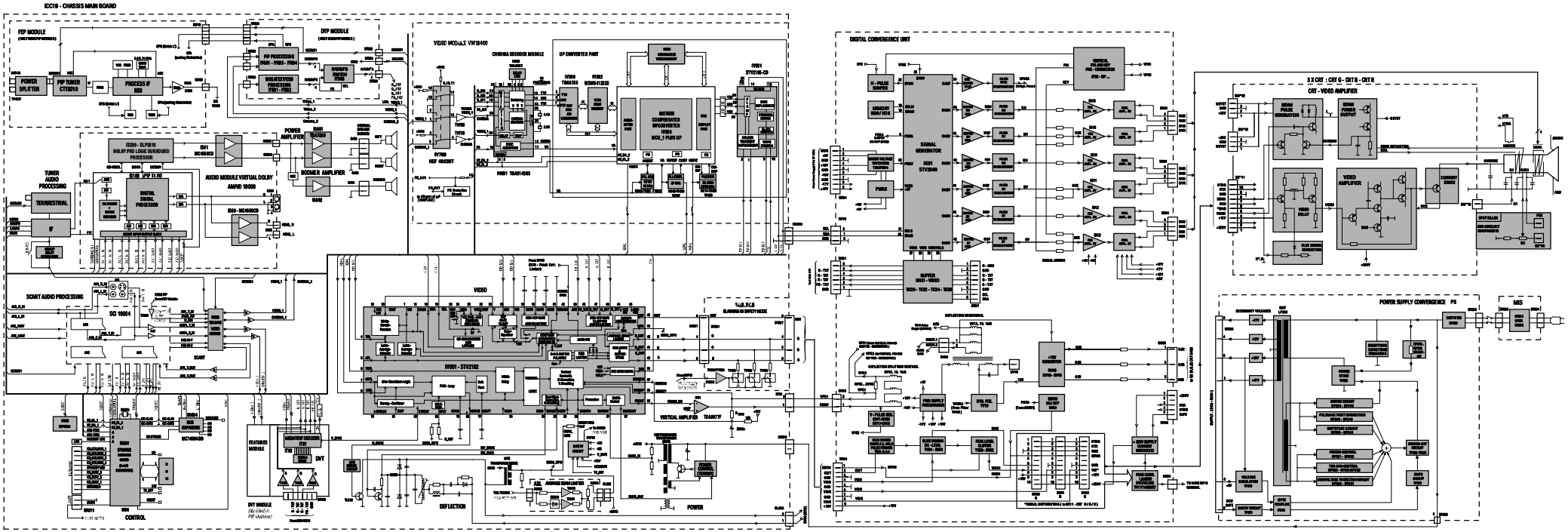


BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCI - ESQUEMA DE BLOQUES

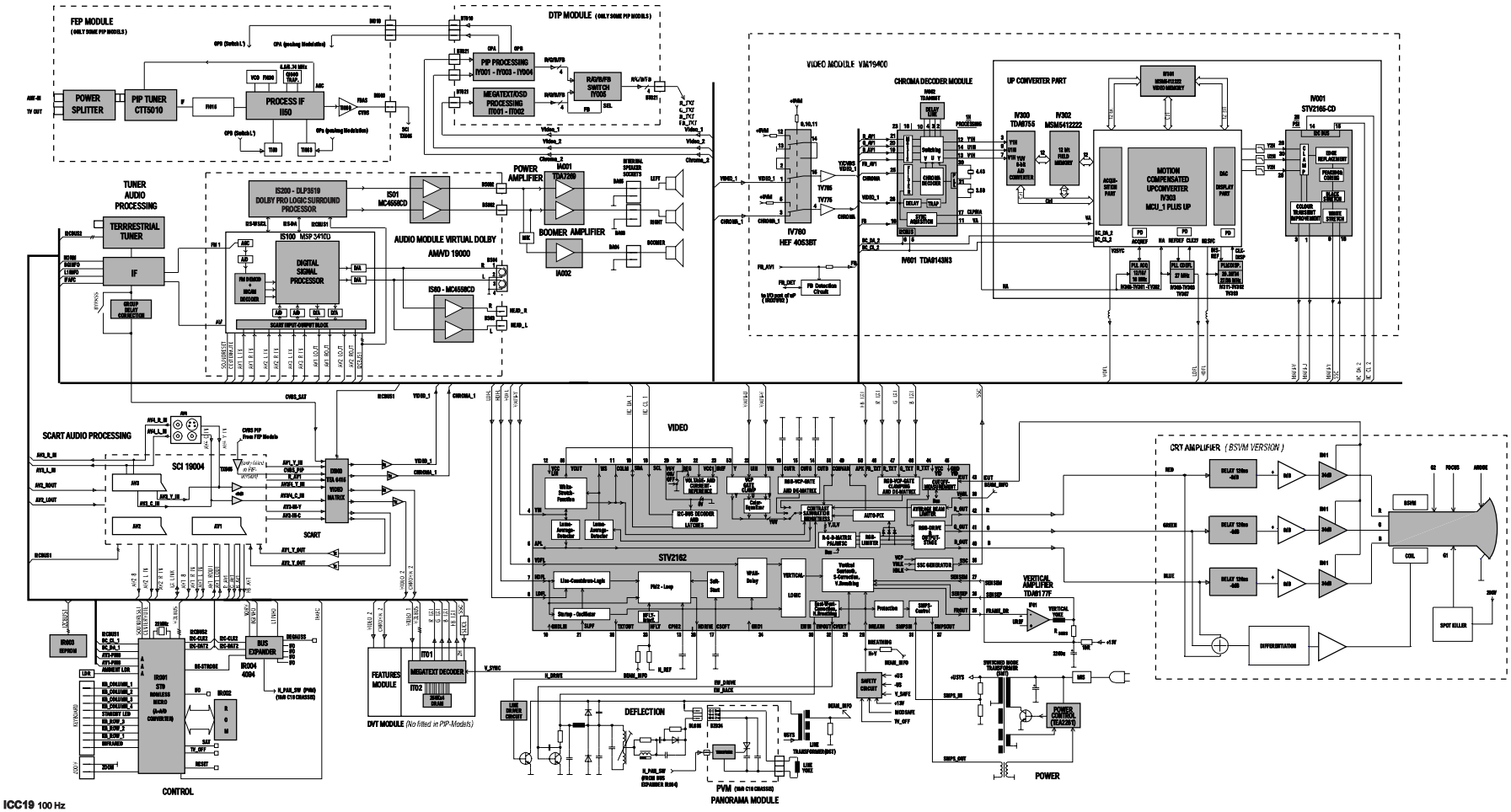


ICC19 100 Hz
First issue 09 / 97

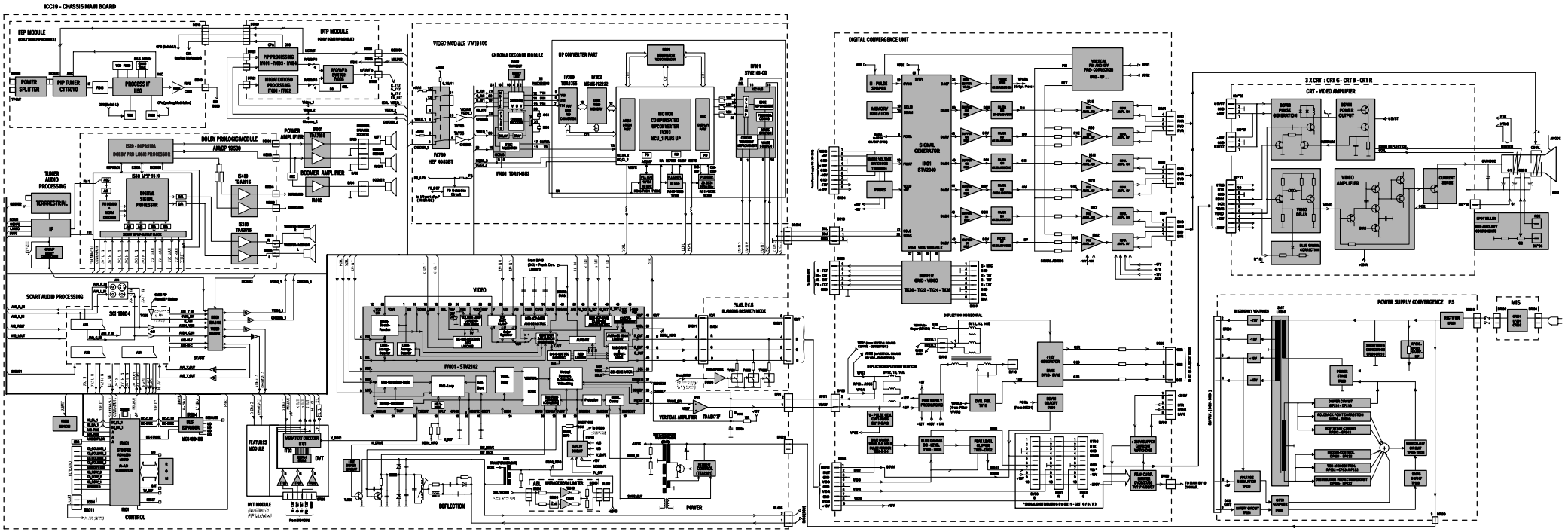
BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCHI - ESQUEMA DE BLOQUES
RP C19 - DOLBY PRO-LOGIC - PIP


ICC19 - CHASSIS MAIN BOARD
FEP MODULE
POWER SPLITTER
PIP TUNER CTI3010
PROCESS IF IS9
DFP MODULE
PIP PROCESSING IV001 - IV003 - IV004
ISOLATED DOT PROCESSING IV001 - IV003
BYPASS SWITCH IV006
VIDEO MODULE VM19400
CHROMA DECODER MODULE
UP CONVERTER PART
IV300 TDA9330
IV302 M38041E2SP
MOTION COMPENSATED UPCONVERTER IV003 MCU_1 PLUS UP
IV001 STV2160
IV001 TDA81436
IV700 REF 4836BY
IV701
POWER AMPLIFIER
IS201 - DLP510 DOLBY PRO LOGIC SURROUND PROCESSOR
IS01 MC4836CD
AUDIO MODULE VIRTUAL DOLBY AMPID 19000
BOOMER AMPLIFIER TDA7250
IS00
TUNER AUDIO PROCESSING
TERRESTRIAL
IF
IS100 - VPP FLY10
DIGITAL SIGNAL PROCESSOR
IS00 - MC4836CD
SCART AUDIO PROCESSING
SCART
SCART
SCART

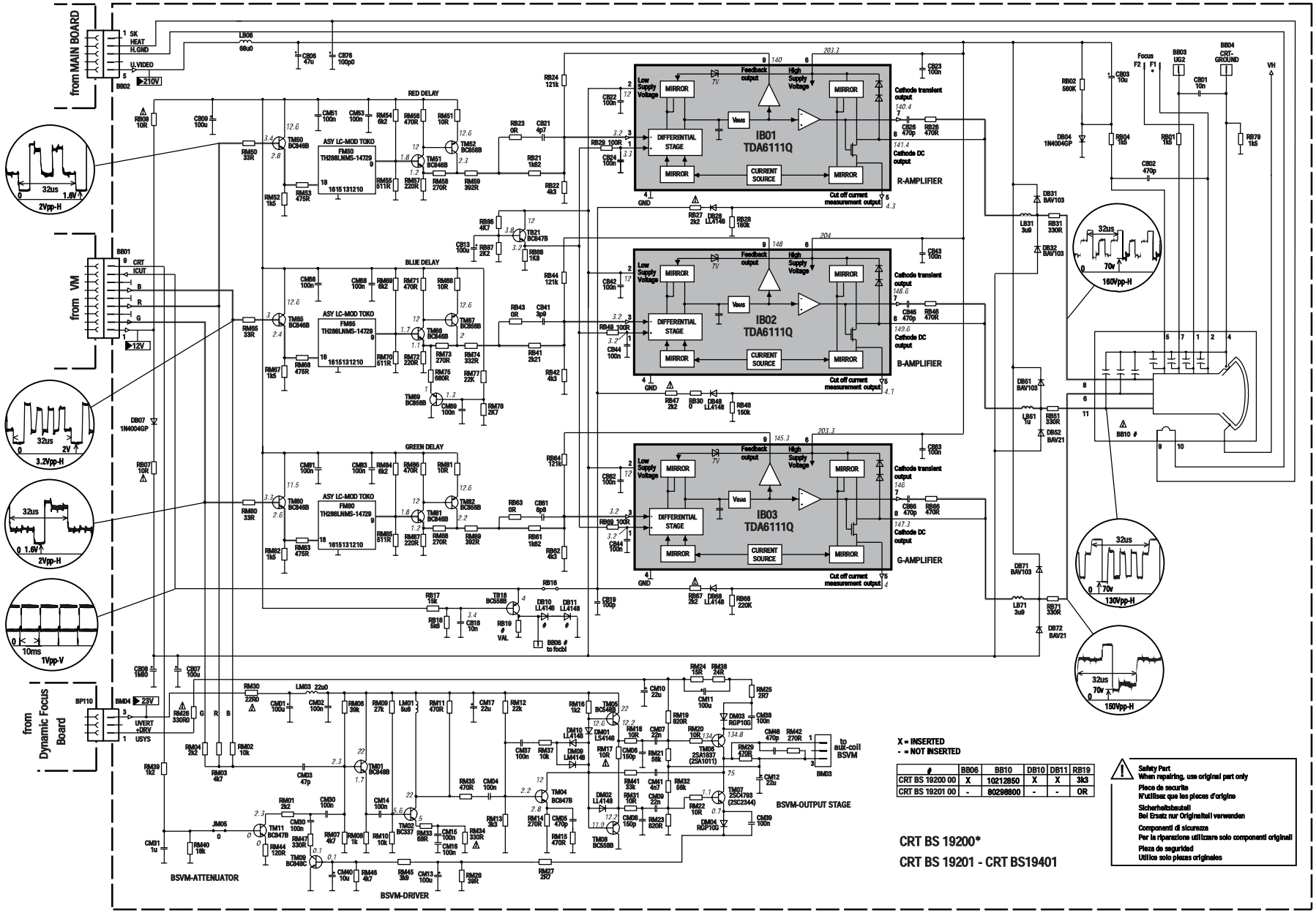
BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCHI - ESQUEMA DE BLOQUES
ICC19 MM 100 Hz - MOTION MASTERING - VIRTUAL DOLBY - PIP



BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCHI - ESQUEMA DE BLOQUES
RP C19 - DOLBY PRO-LOGIC - PIP

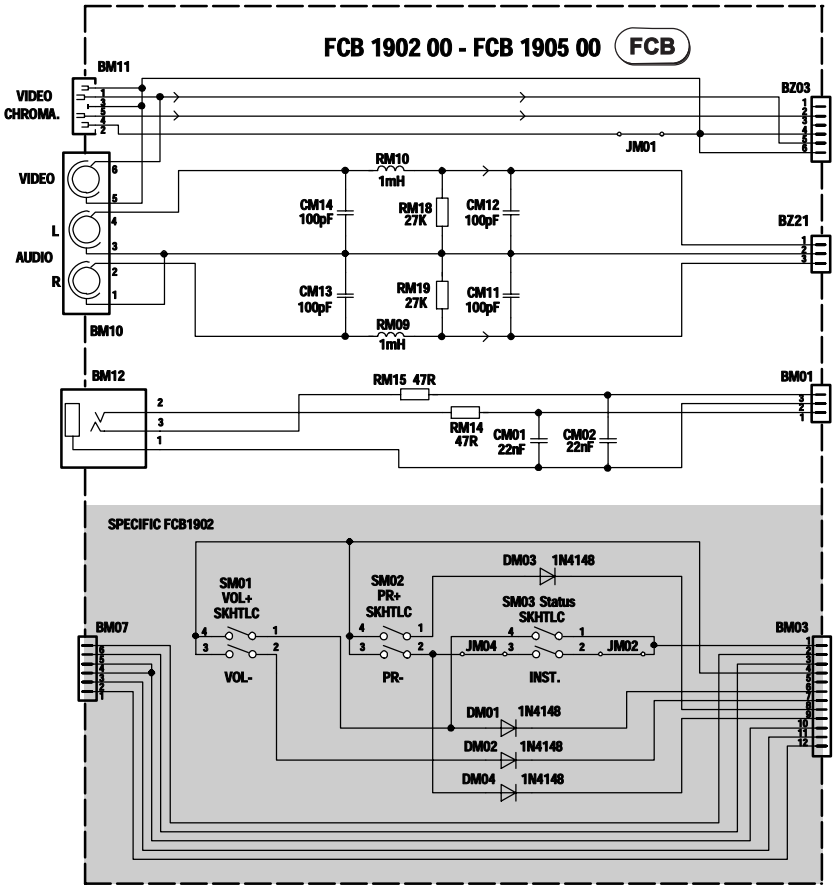


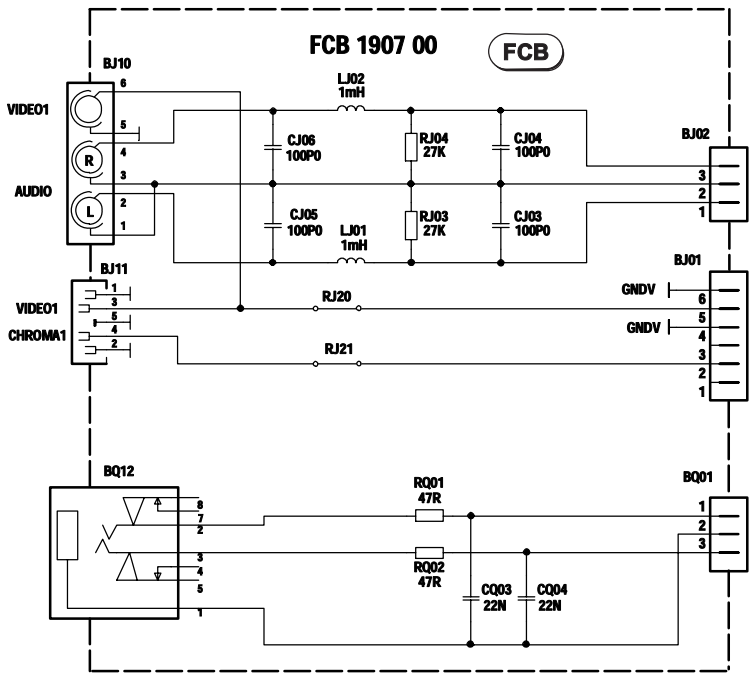
VIDEO AMPLIFIER BOARD - PLATINE AMPLIFICATEURS VIDEO - VIDEOVERSTÄRKERPLATTE - PIASTRA AMPLIFICATORE VIDEO - PLATINA AMPLIFICADOR VIDEO
CRTBS19200 - CRTBS19201 - CRT BS19401



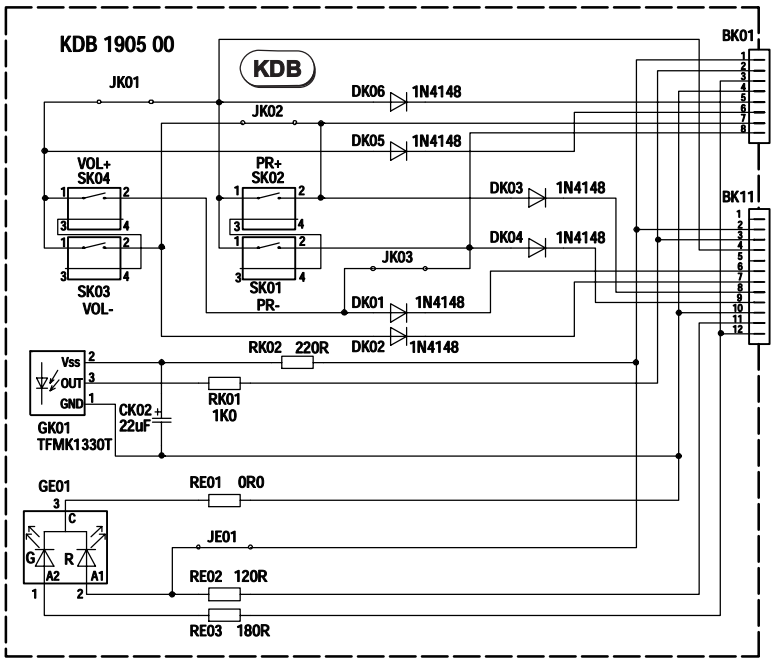
#	BB06	BB10	DB10	DB11	RB19
CRT BS 19200 00	X	10212850	X	X	3k3
CRT BS 19201 00	-	80298800	-	-	OR

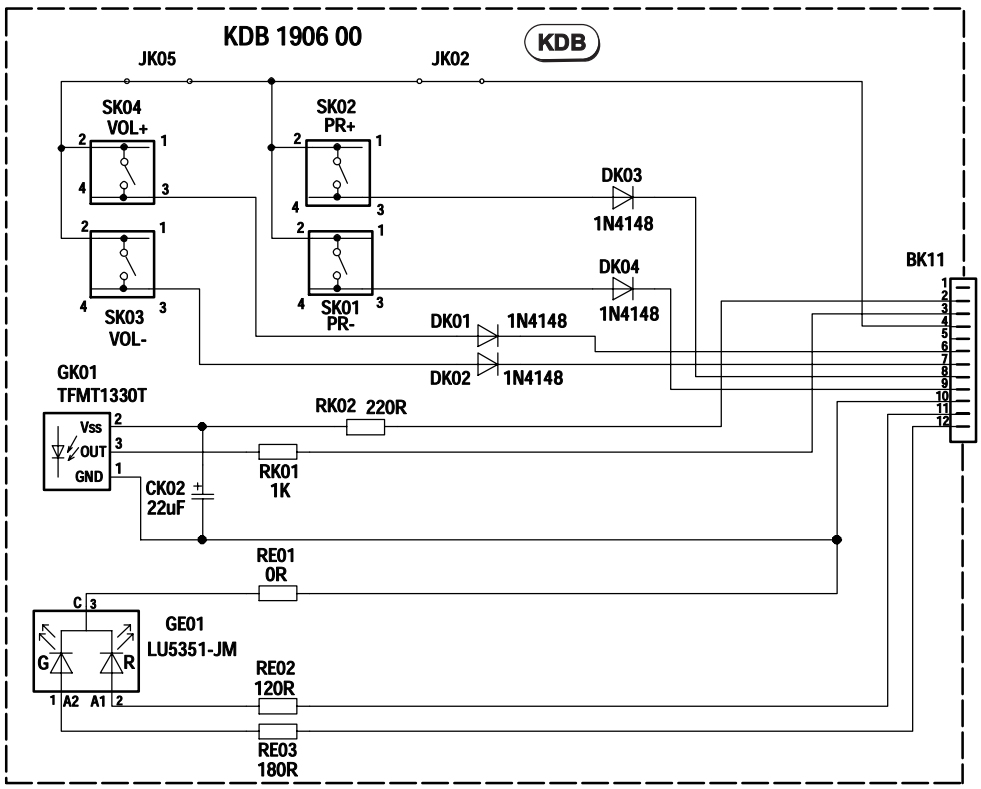
FRONT CONNECTOR BOARD - PRISES EN FACADE ET INTERCONNEXION DU CLAVIER - FRONT ANSCHLUSSPLATTE - PIASTRA CONNESSIONE FRONTALE - PLÁTINA MANDOS FRONTAL



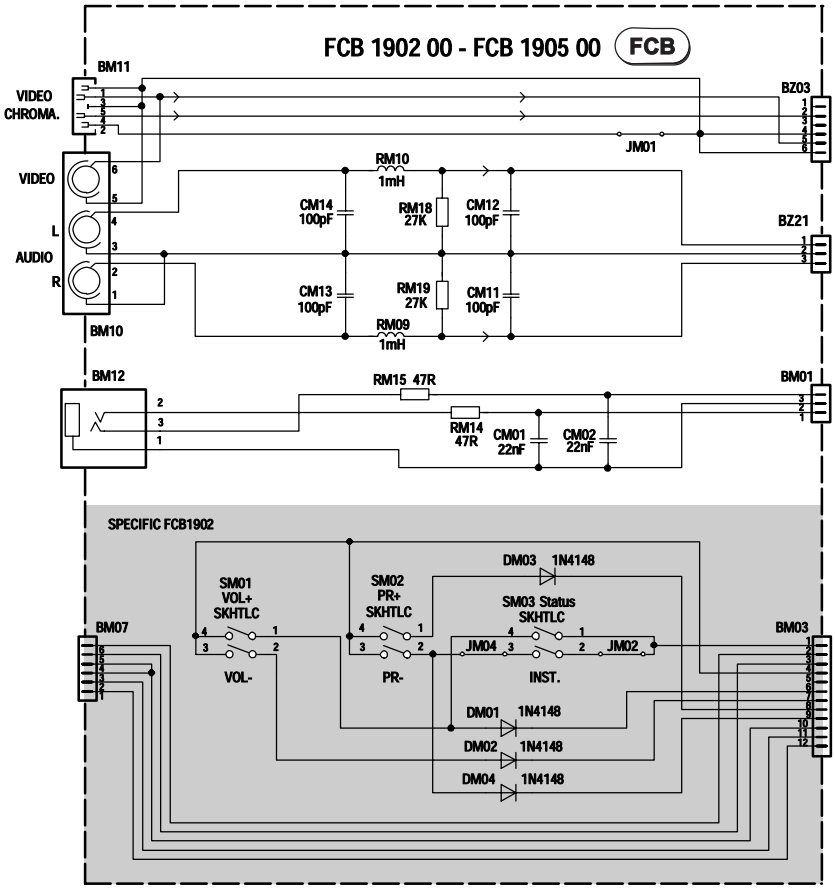


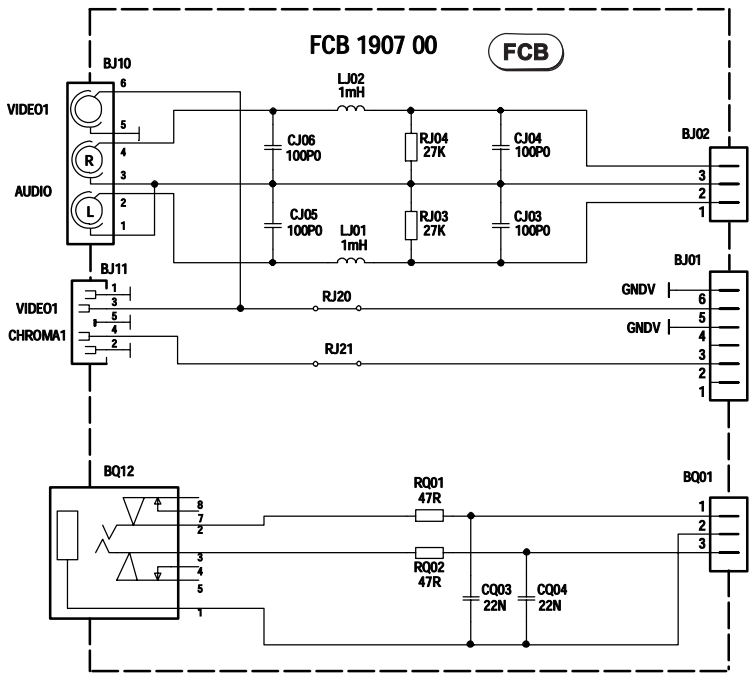
KEYBOARD MODULE - PLATINE CLAVIER - TASTATURPLATTE - PISATRA COMANDI - PLATINA TECLADO



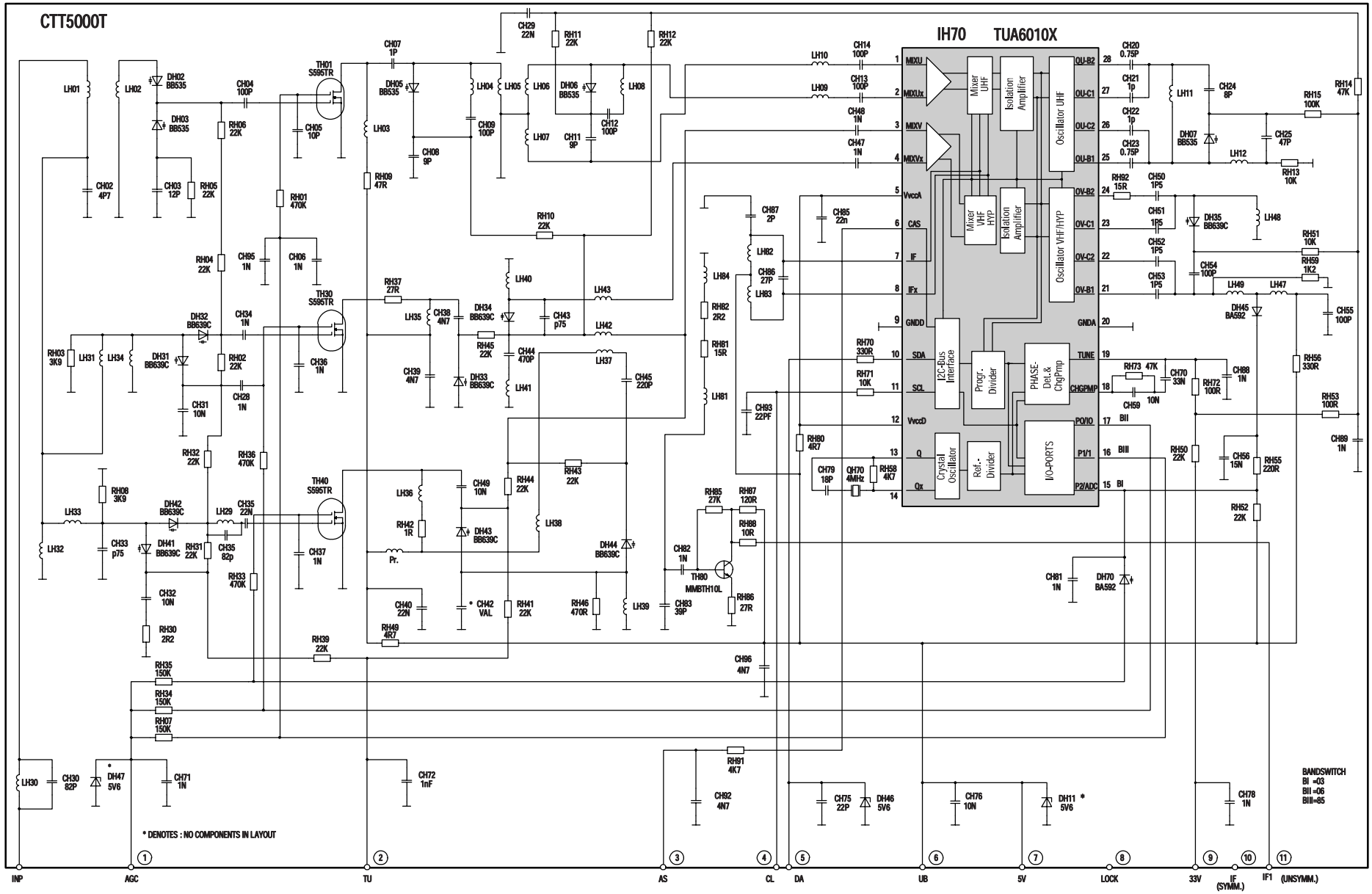


FRONT CONNECTOR BOARD - PRISES EN FACADE ET INTERCONNEXION DU CLAVIER - FRONT ANSCHLUSSPLATTE - PIASTRA CONNESSIONE FRONTALE - PLÁTINA MANDOS FRONTAL

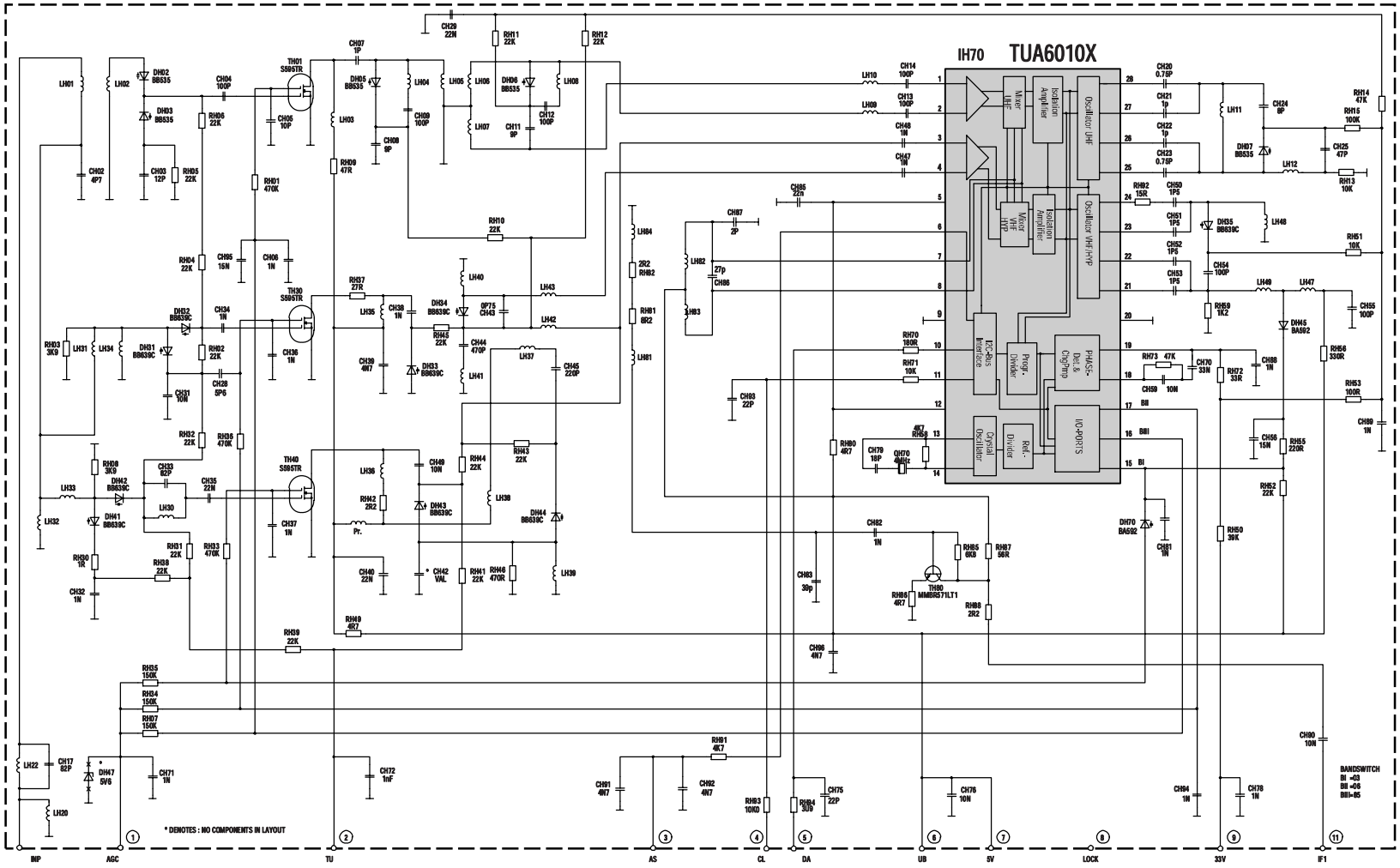




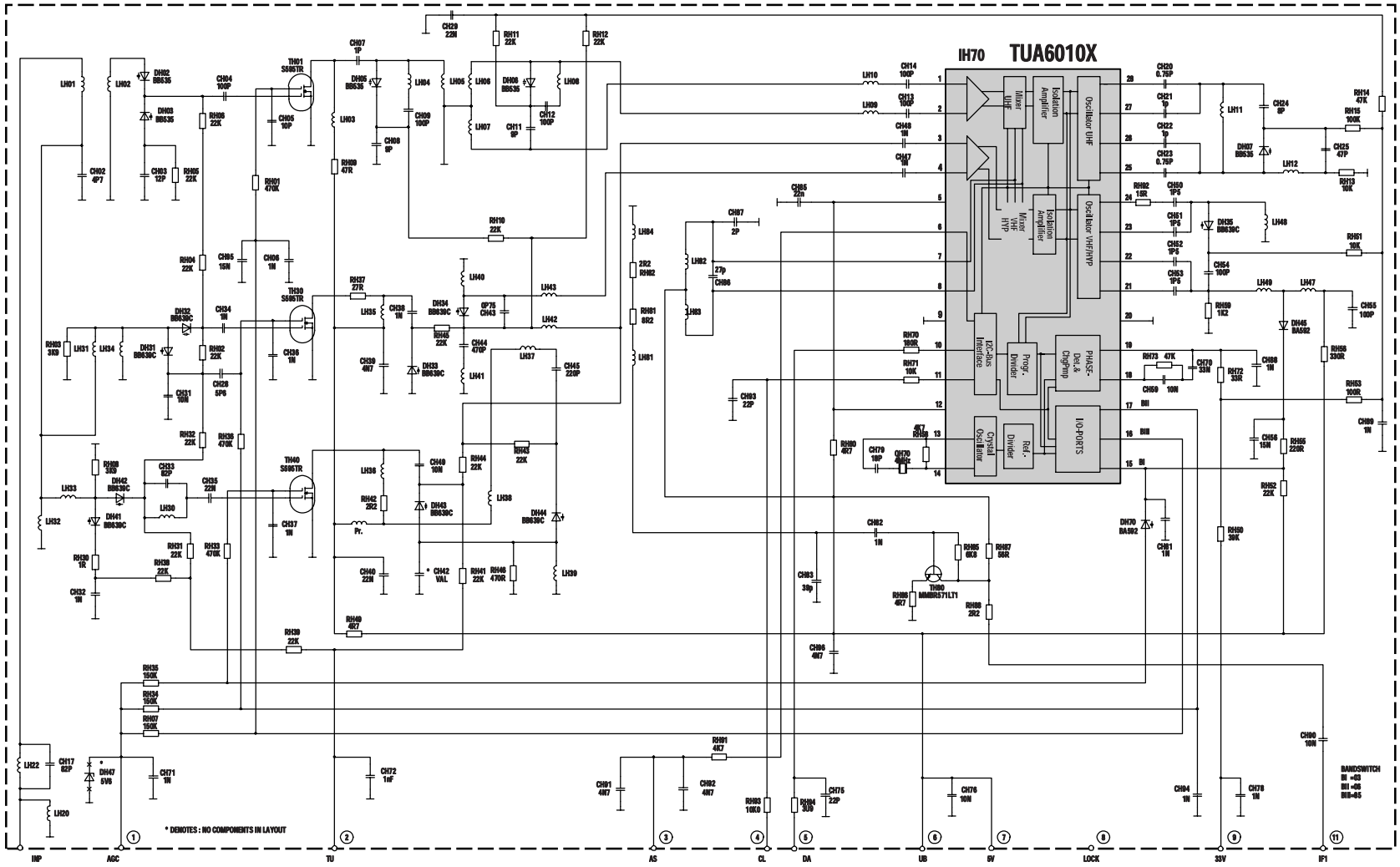
VHF / UHF TUNER CTT5000T (For information only)



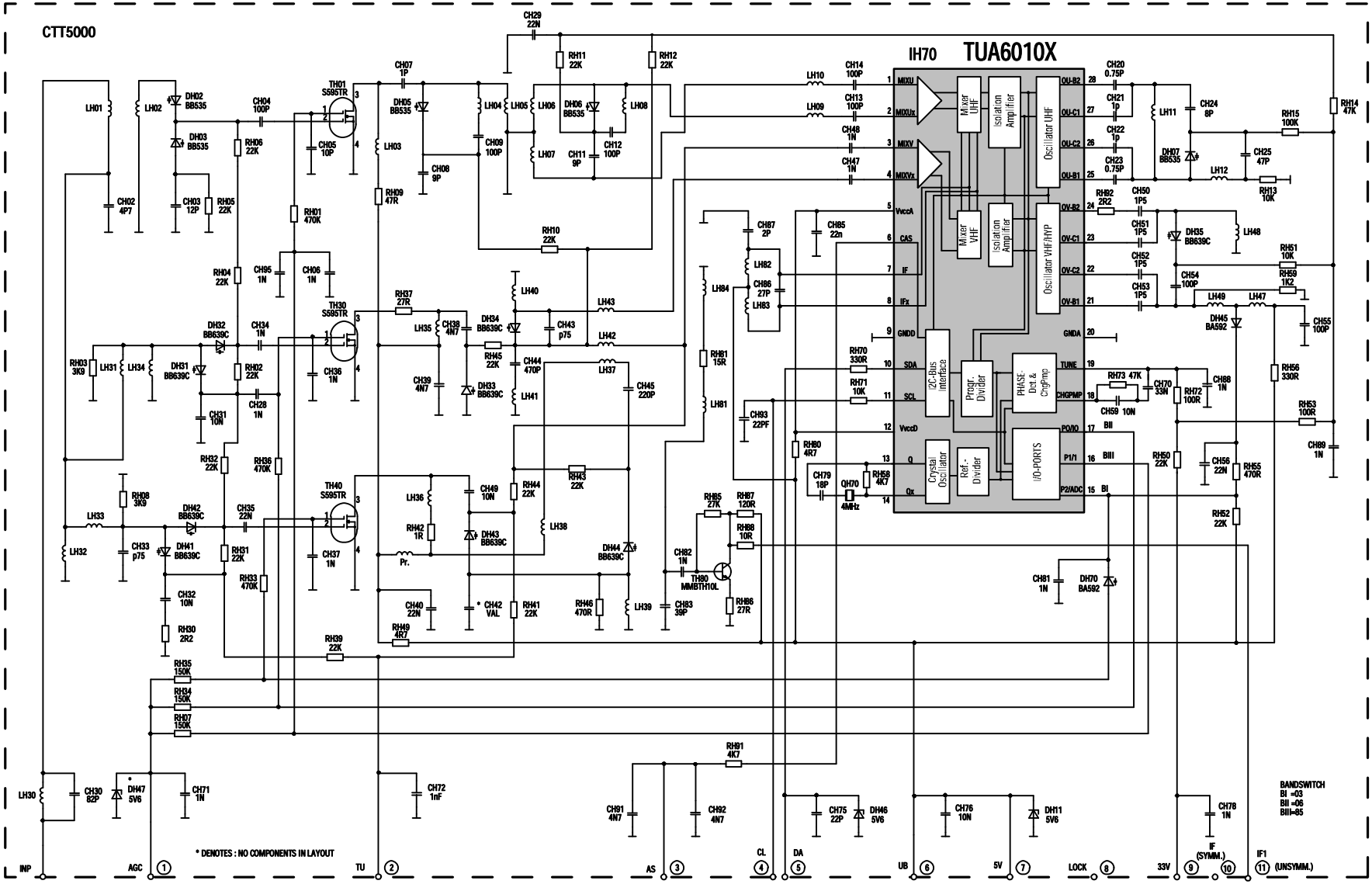
VHF / UHF TUNER CTT5010 (For information only)



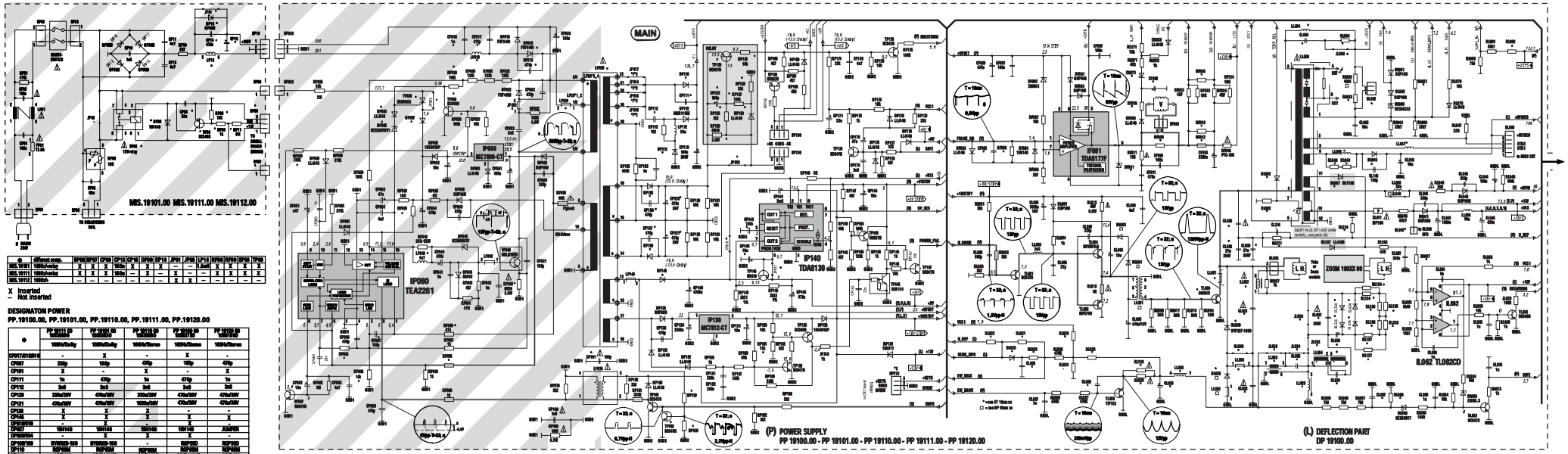
VHF / UHF TUNER CTT5010 (For information only)



VHF / UHF TUNER CTT5000 (For information only)



COMPLETE PCB DIAGRAM - SCHEMA PLATINE PRINCIPALE EQUIPEE - SCHALTUNG LEITERPLATTE KPL - SCHEMA PIASTRA COMPLETA - ESQUEMA PLATINA EQUIPADA



◆	different comp.	SP03/SP07	SP08	CP13	CP131	DP09	DP16	JP01	JP03	LP13	SP09	SP06	TP09
MS.19101	1600x/Dolby	X	X	X	150p	X	X	–	–	1.8mH	X	X	X
MS.19111	1600x/Dolby	X	X	X	150p	–	X	–	X	–	X	X	X
MS.19112	1600x/-	–	–	–	–	–	–	X	X	–	–	–	–

X Inserted
– Not inserted

DESIGNATON POWER
PP.19100.00, PP.19101.00, PP.19110.00, PP.19111.00, PP.19120.00

◆	PP.19111.00 MS19111	PP.19101.00 MS19101	PP.19110.00 MS19110	PP.19120.00 MS19120	PP.19100.00 MS19100
	1600x/Dolby	1600x/Dolby	1600x/Stereo	1600x/Stereo	1600x/Stereo
CP07/IP080	-	X	-	X	-
CP07	220p	180p	470p	180p	470p
CP01	X	-	X	-	X
CP11	1n	470p	1n	470p	1n
CP12	3n3	3n3	3n3	3n3	3n3
CP139	330n/50V	470n/50V	330n/50V	470n/50V	470n/50V
CP121	470n/50V	470n/50V	1000n/50V	470n/50V	470n/50V
CP58	X	X	X	-	-
CP48	X	X	X	-	X
DP07/IP070	-	-	-	-	-
DP07	1N4148	1N4148	1N4148	1N4148	JUMPER
DP09/IP084	-	-	-	-	-
DP100/IP100	BYW29G-150	BYW29G-150	-	RGP30D	RGP30D
DP110	RGP30D	RGP30D	RGP30D	RGP30D	RGP30D
DP115	MUR160	MUR160E	MUR160E	MUR160E	MUR160
DP120	X	X	-	-	-
DP140	BYW29-150	BYW29-150	M6622	M6622	M6622
JP002	X	JUMPER	X	JUMPER	X
JP002	-	-	-	-	X
JP002/011	-	-	-	-	-
JP013	-	-	-	X	X
JP014	130V	130V	130V	130V	130V
JP016	130V	130V	130V	130V	130V
JP017	130V	130V	130V	130V	130V
LP010	1400V	1400V	1400V	1400V	1400V
LP018	-	100u	-	100u	-
LP020	10397020	10397020	10568700	10568700	10568720
LP021	-	X	-	X	-
LP040	4u7	2u2	4u7	2u2	4u7
LP042	JUMPER	X	JUMPER	X	JUMPER
IP080/IP084	X	X	X	X	X
RP004	68k	68k	68k	68k	68k
RP005	-	47k	-	47k	-
RP006	10k	10k7	11k	10k7	11k
RP008	4k22	4k22	3k65	4k22	3k65
RP126/129	X	X	X	-	-
RP127/29	X	X	X	-	X
RP130	X	X	X	-	-
RP138	22k	10k	24k	10k	24k
RP139	220k	68k	274k	68k	270k
RP151	10k	12k	10k	12k	10k
TP009/IP009	X	X	X	X	-
TP139	X	X	X	X	-
TP152	-	X	X	X	X

X Inserted
– Not inserted

Part of board connected to mains supply.
Partie du chassis reliée au secteur.
Primärseite des Netzteils.
Parte dello chassis collegata alla rete.
Parte del chassis conectada a la red.

Safety Part.
When repairing, use original part only
Pièce de sécurité
N'utilisez que les pièces d'origine
Sicherheitsteil
Bei Ersatz nur Originalteil verwenden
Componenti di sicurezza
Per la riparazione utilizzare solo componenti originali
Pieza de seguridad
Utilice solo piezas originales

Note :
Power Supply primary circuit measurements.
- Use only (GND1) connection point.
Attention :
Mesure dans le bloc alimentation
- Utiliser la masse du bloc alimentation (GND1).
Achtung :
Bei Messungen im Primärnetzteil
- Primärnetzteilmasse verwenden (GND1).
Attenzione :
misure nell'alimentatore primario
- usare massa alimentazione primario (GND1).
Cuidado :
Medida en el bloque de alimentacion
- Utilizar la masa del bloque de alimentacion (GND1).

Use Isolating mains transformer
Utilise un transformateur isolateur du secteur
Einen Trenntrafo verwenden
Utilizar un transformador aislador de red
Utilizzare un transformatore per isolarvi dalla rete

◆	Deflection - Basic Portfolio
	19000
□	DP 19100.00
	19 24 09.00
DL003/004	–
DL012	BYD33-400
DL033/034	BYD17-300
JL043	–
LL031	19 45 07.00
LL091	19 26 04.00
RL052	X

X Inserted
– Not inserted

◆	Deflection - Picture Tube related Portfolio								
	CT 19193.34	CT 19193.37	CT 19193.27	CT 19193.37	CT 19193.37	CT 19193.34	CT 19193.34	CT 19193.34	CT 19201.49
	29"M3P AK	29"M3P SS-Tube	29"M3P SS-Tube	29"M3P SS-Tube	29"M3P SS-Tube	29"M3P SS-Tube	29"M3P SS-Tube	29"M3P SS-Tube	29"M3P SS-Tube
DL013	–	–	–	–	–	–	–	X	–
DL062	–	X	X	X	X	X	X	X	X
DL092	680p	680p	680p	680p	680p	2n2	2n2	2n2	2n2
DL093	1n0	1n0	1n0	1n0	1n0	1n0	1n0	1n0	1n0
DL023	–	–	–	–	–	–	–	–	–
DL036	1n0	1n0	1n0	1n0	1n0	68n	68n	68n	68n
DL039	3n3	3n3	3n3	3n3	3n3	470n2	470n2	470n2	470n2
DL038	1n/250V	1n/250V	1n/250V	1n/250V	1n/250V	2n7/250V	2n7/250V	2n7/250V	2n7/250V
DL031	11n/250V	11n/250V	11n/250V	12n/250V	1.5n/250V	11n/250V	11n/250V	11n/250V	11n/250V
DL032	27n6/400V	27n6/400V	27n6/400V	22n6/315V	27n6/400V	33n6/315W	33n6/315W	33n6/315W	33n6/315W
DL035	–	–	–	–	–	680n/400V	680n/400V	680n/400V	680n/400V
DL034	–	12n/400V	12n/400V	12n/400V	–	12n/400V	12n/400V	12n/400V	12n/400V
DL038	–	2n2	2n2	2n2	2n2	2n2	2n2	2n2	–
DL037	470n/400V	470n/400V	470n/400V	470n/400V	470n/400V	680n/250V	680n/250V	680n/250V	–
DL047	–	–	–	–	–	100n/5	100n/5	100n/5	100n/5
DL064	3n9/400V	3n9/400V	3n9/400V	3n9/400V	3n9/400V	3n9/400V	3n9/400V	3n9/400V	3n9/400V
DL011	470p2	470p2	470p2	470p2	470p2	470p2	470p2	470p2	470p2
DP011	DTA08S 68.0V	DTA08S 68.0V	DTA08S 68.0V	DTA08S 68.0V	DTA08S 68.0V	DTA08S 68.0V	DTA08S 68.0V	DTA08S 68.0V	DTA08S 68.0V
DL023	–	–	–	–	–	–	–	–	–
DL052	BYR29F-600	BYR29F-600	BYR29F-600	BYR29F-600	BYR29F-600	BYR29F-600	BYR29F-600	BYR29F-600	BYR29F-600
DL054/78	–	ESP18D	ESP18D	ESP18D	ESP18D	ESP18D	ESP18D	ESP18D	–
DL048	MUR160E	MUR160E	MUR160E	MUR160E	MUR160E	MUR160E	MUR160E	MUR160E	MUR160E
DL067	BAY39	BAY39	BAY39	BAY39	BAY39	BAY39	BAY39	BAY39	BAY39
DL167	–	LL4148	–	–	–	LL4148	LL4148	–	–
DL071	BZX84C6V8	BZX84C6V8	BZX84C6V8	BZX84C6V8	BZX84C6V8	BZX84C6V8	BZX84C6V8	BZX84C6V8	BZX84C6V8
DL082	–	18V1/4B	18V1/4B	18V1/4B	18V1/4B	18V1/4B	18V1/4B	18V1/4B	18V1/4B
BL34/48	–	–	–	–	–	–	–	–	–
JL002	X	–	–	–	X	–	–	–	–
JL003	X	X	X	X	X	–	–	–	–
JL004	X	X	X	X	X	–	–	–	–
JL006	–	–	–	–	–	–	–	–	X
JL085	–	X	X	X	X	X	X	X	X

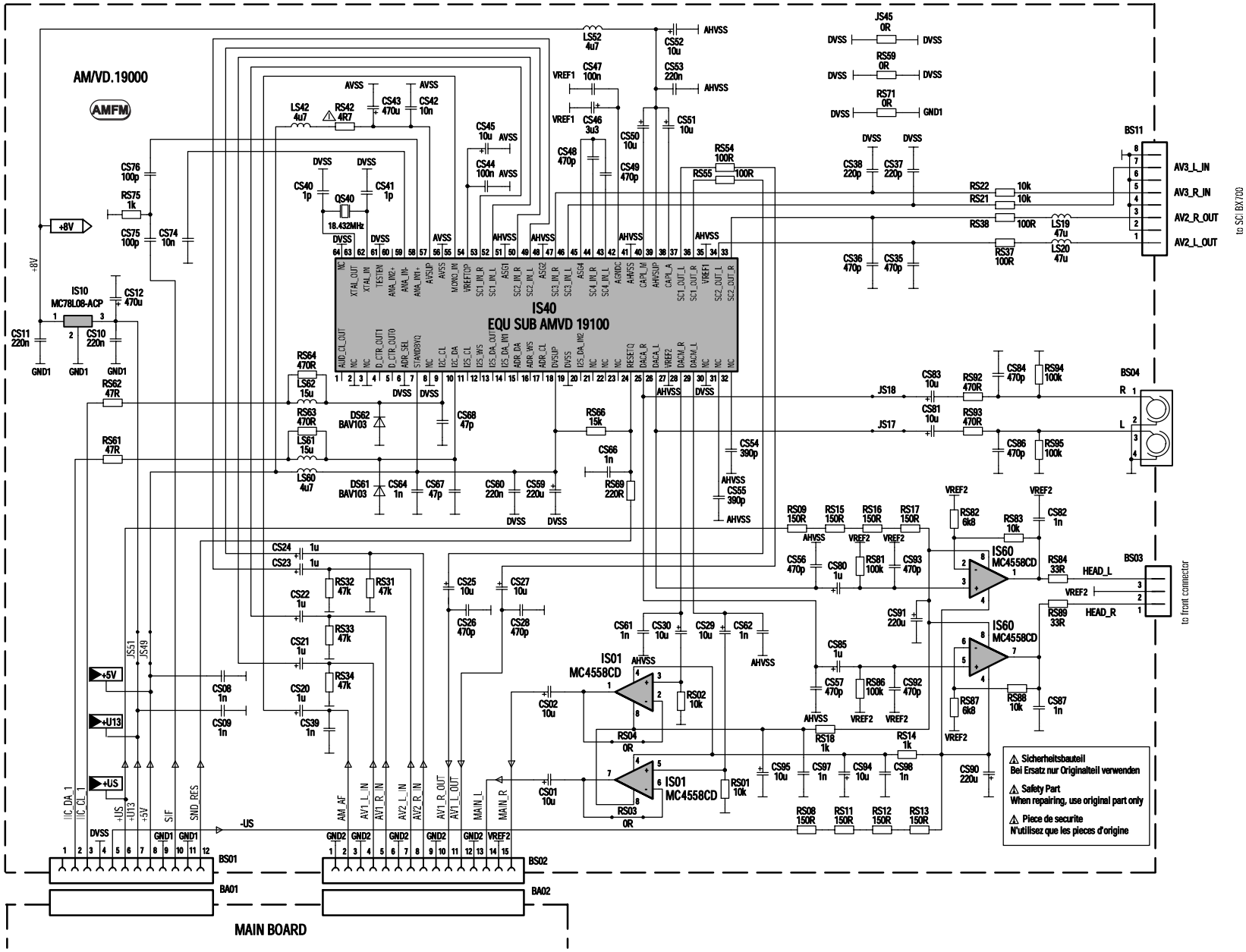
Note : the last two numbers of the CT xxxx part list name indicates the system voltage.
e.g. CT 19005 31 Usys 131V →

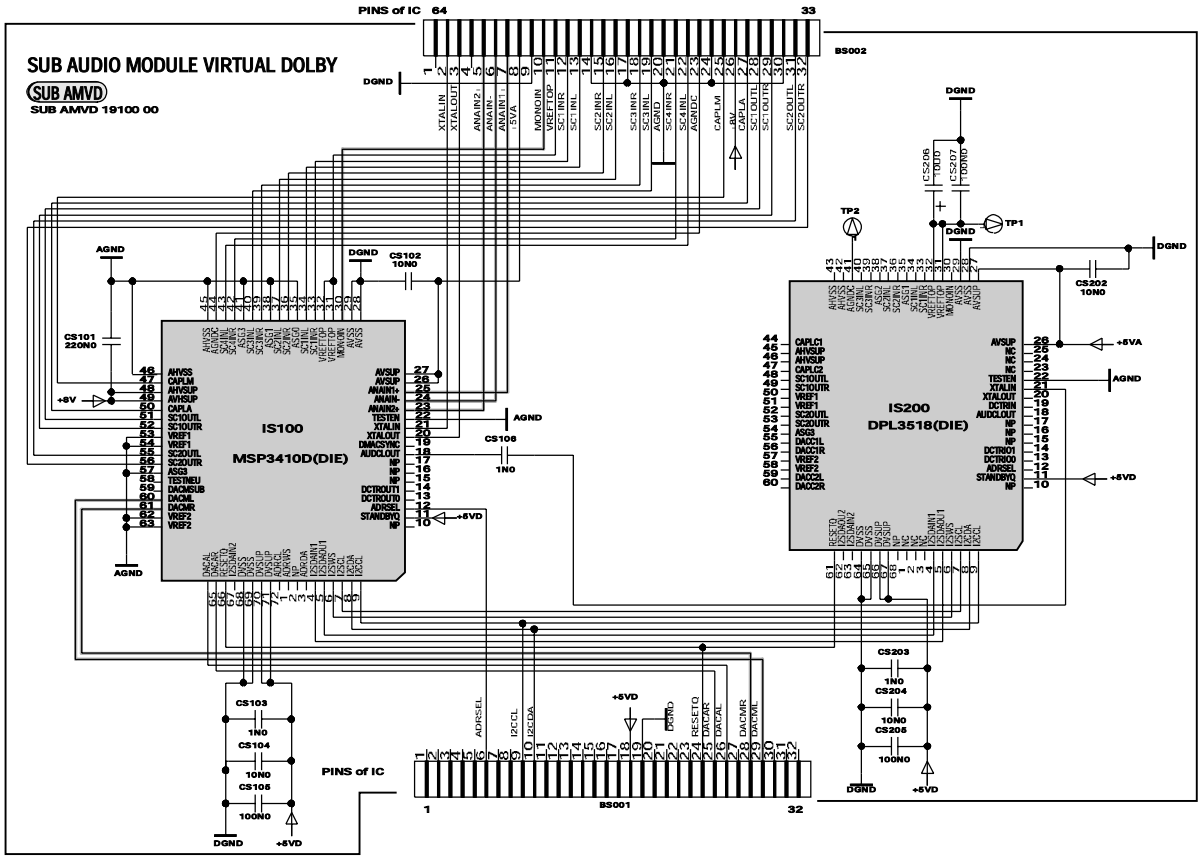
Nota: Los dos últimos números de la denominación CT xxxx, indica la tensión Usys
e.g. CT 19005 31 Usys 131V →

◆	Deflection - Picture Tube related Portfolio							
	CT 19193.34	CT 19193.37	CT 19193.37	CT 19193.37	CT 19193.34	CT 19193.34	CT 19193.34	CT 19201.49
	29"M3P AK	29"M3P 90MAX 29"M3P 90MAX 29"M3P 90MAX	29"M3P 90MAX 29"M3P 90MAX 29"M3P 90MAX	29"M3P 90MAX SS-Tube	37"M3P 90MAX	29"M3P 90MAX 42"M3P 90MAX 42"M3P 90MAX	29"M3P 90MAX 42"M3P 90MAX 42"M3P 90MAX	29"M3P 90MAX 42"M3P 90MAX 42"M3P 90MAX
LL008	19 56 11 70	19 61 08 70	19 61 08 70	19 61 08 70	19 61 08 70	19 62 09 30	19 62 09 30	19 67 67 40
LL009	19 15 42 70	19 15 42 70	19 15 42 70	19 15 42 70	19 15 42 70	19 34 76 89	19 34 76 89	19 34 76 89
LL021	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
LL003	–	–	–	–	–	19 63 27 30	19 63 27 30	19 68 27 30
LL004	–	–	–	–	–	19 15 32 70	19 15 32 70	19 15 32 70
LL007	19 61 62 30	19 61 62 30	19 61 62 30	19 61 62 30	19 61 62 30	19 61 62 30	19 61 62 30	19 61 62 30
LL005	22u0	22u0	22u0	22u0	22u0	22u0	22u0	22u0
LL007	10u0	12u0	12u0	12u0	12u0	12u0	12u0	12u0
LL004	22u0	22u0	22u0	22u0	22u0	22u0	22u0	22u0
RP002	10k	10k	10k	10k	10k	10k	10k	10k
RP013	150	180	180	180	180	180	180	180
RP013	180	180	180	180	180	1R82	1R82	1R82
RP020	27R0	27R0	27R0	-	27R0	-	-	-
RP023	4R99	4R99	4R99	6R98	4R99	15R00	15R00	15R00
RP008	180	180	180	180	180	180	180	180
RL033	7k15	7k15	7k15	6k49	7k15	4k84	4k84	4k84
RL052	–	–	–	–	–	–	–	–
RL054	4k02	4k02	4k02	4k02	4k02	3k57	3k57	3k57
RL056	6190	6190	6190	12190	6190	3092	3092	3092
RL059	3K2	3K2	3K2	3K2	3K2	–	–	–
RL044/49	3k3	3k3	3k3	3k3	3k3	3k3	3k3	3k3
RL061	27R0	27R0	27R0	27R0	27R0	27R0	27R0	27R0
RL063	3302	6648	6648	6648	6648	6124	6124	6809
RL067	6652	6652	6652	6652	6652	6652	6652	6652
RL068	4k22	4k22	4k22	4k22	4k22	–	–	–
RL062	5110	5110	5110	5110	5110	5110	5110	5489
RL064	27R0	–	–	–	–	–	–	–
RL063	–	4k7	4k7	4k7	4k7	4k7	4k7	4k7
RL12/26	–	7k5	7k5	7k5	7k5	7k5	7k5	–
RL126/27	–	7k5	7k5	7k5	7k5	7k5	7k5	–
RL129	–	–	–	–	–	2k2	2k2	2k2
RL13/26	–	7k5	7k5	7k5	7k5	7k5	7k5	–
RL13/27	–	7k5	7k5	7k5	7k5	7k5	7k5	–
RL211	6k8	6k8	6k8	6k8	6k8	6k8	6k8	6k8
RL214	–	–	–	BAY103	–	–	–	–
LL003	CM4977	CM4977	CM4977	CM4977	CM4977	CM4977	CM4977	CM4977
ZOOM	–	–	–	–	–	–	–	–

ICC19 100 Hz
First issue 09 / 97

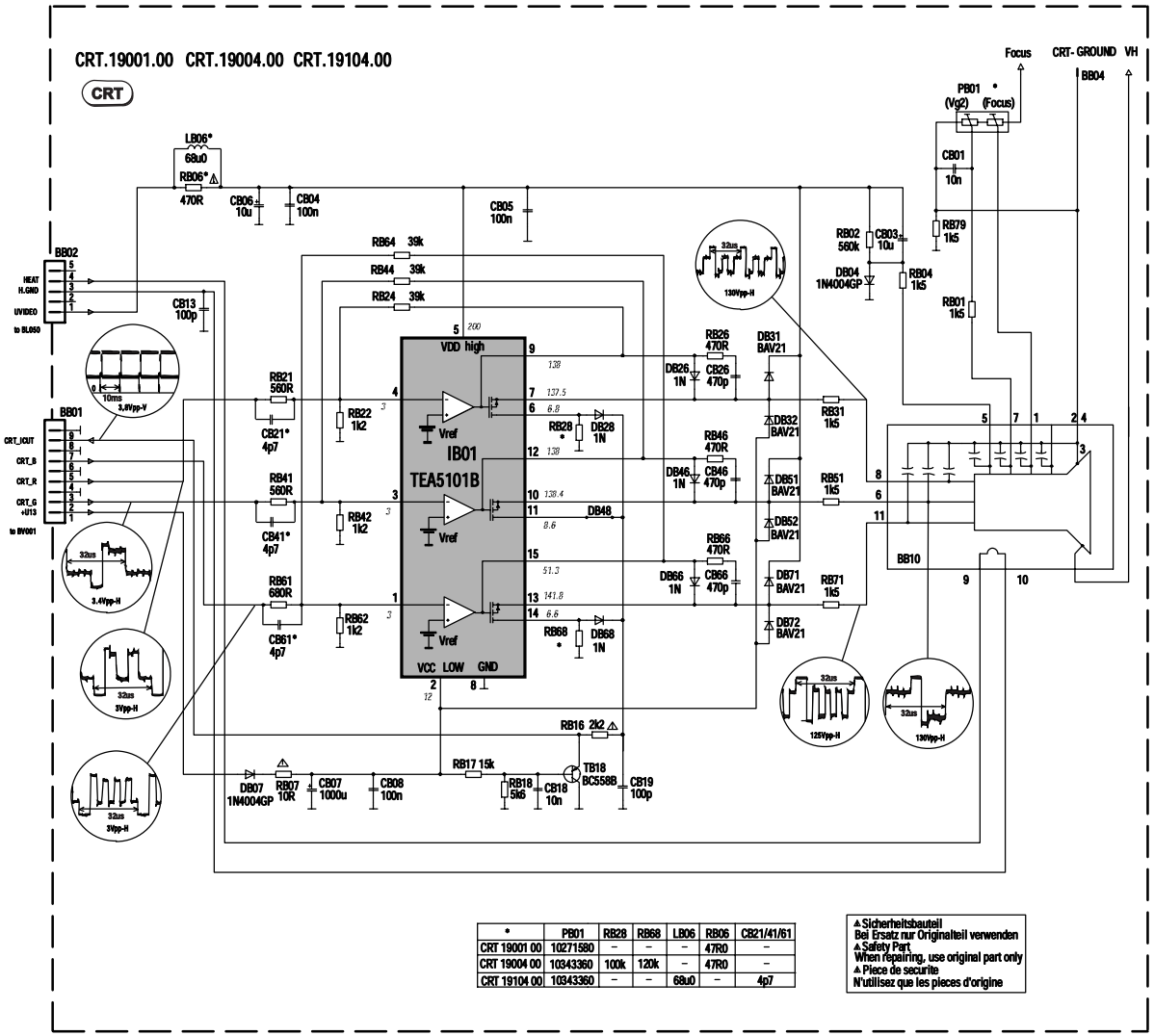
Updated 11 / 98


AM/VD.19000
AMFM
IS40
EQU SUB AMVD 19100
IS10
MC78L08-ACP
IS01
MC4558CD
IS60
MC4558CD
BS01
BS02
BS03
BS04
BS11
BA01
BA02
MAIN BOARD
to front connector
to SIC BX700
AV3_L_IN
AV3_R_IN
AV2_R_OUT
AV2_L_OUT
HEAD_L
HEAD_R
⚠ Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden
⚠ Safety Part
When repairing, use original part only
⚠ Piece de securite
N'utilisez que les pieces d'origine


SUB AUDIO MODULE VIRTUAL DOLBY
SUB AMVD
SUB AMVD 19100 00
PINS of IC 64
33
BS002
IS100
MSP3410D(DIE)
IS200
DPL3518(DIE)
TP1
TP2
AGND
DGND
+8V
+5VA
+5VD
CS101 220N0
CS102 10N0
CS106 1N0
CS108 1N0
CS202 10N0
CS203 1N0
CS204 10N0
CS205 100N0
CS103 1N0
CS104 10N0
CS108 100N0
PINS of IC
1
32
BS001

VIDEO AMPLIFIER BOARD - PLATINE AMPLIFICATEURS VIDEO - VIDEOVERSTÄRKERPLATTE - PIASTRA AMPLIFICATORE VIDEO - PLATINA AMPLIFICADOR VIDEO

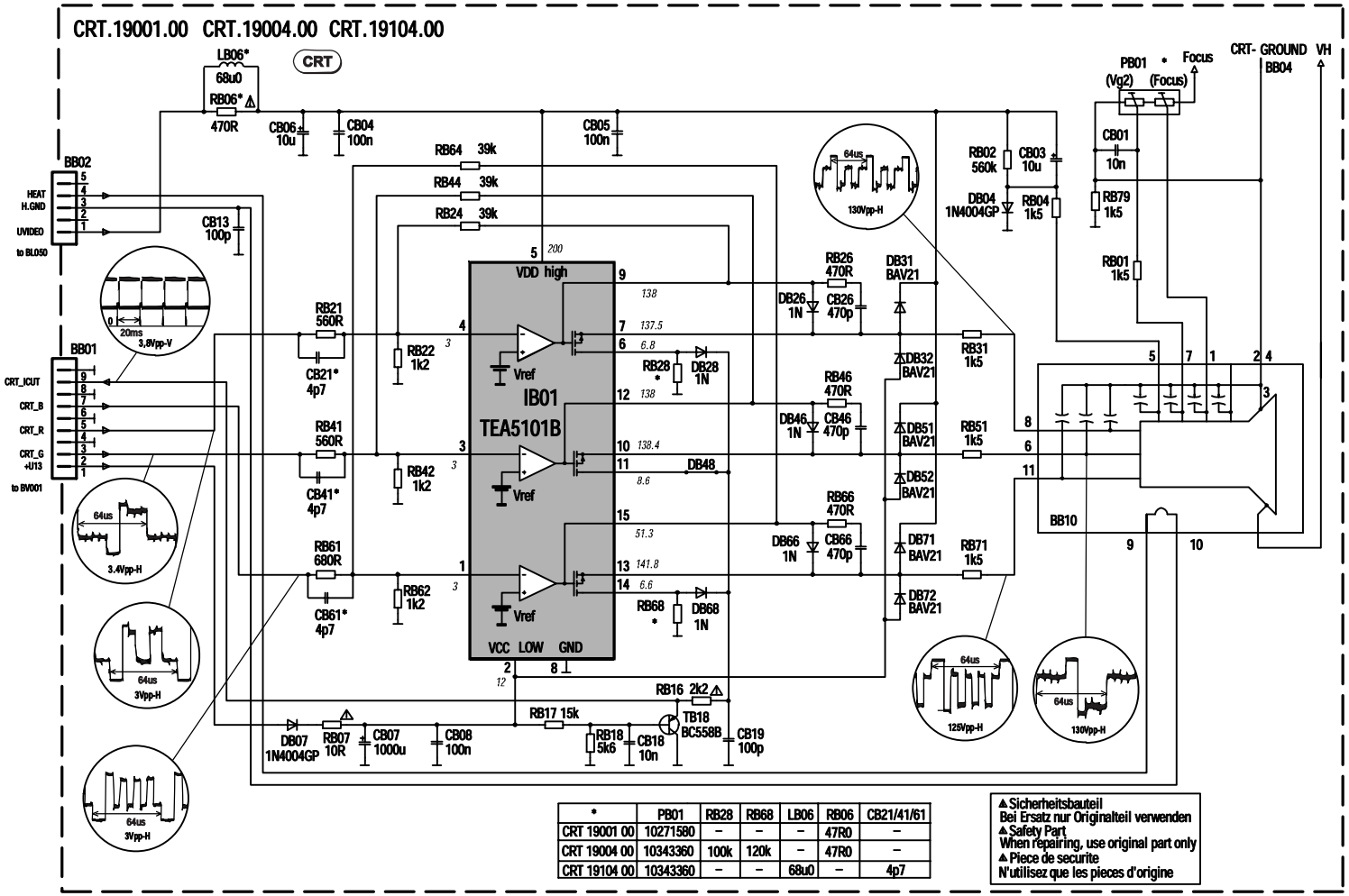
CRT1904 - CRT19104



•	PB01	RB28	RB68	LB06	RB06	CB21/41/61
CRT 19001 00	10271590	–	–	–	47R0	–
CRT 19004 00	10343360	100k	120k	–	47R0	–
CRT 19104 00	10343360	–	–	68u0	–	4p7

▲Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden
▲Safety Part
When repairing, use original part only
▲Piece de securite
N'utilisez que les pieces d'origine

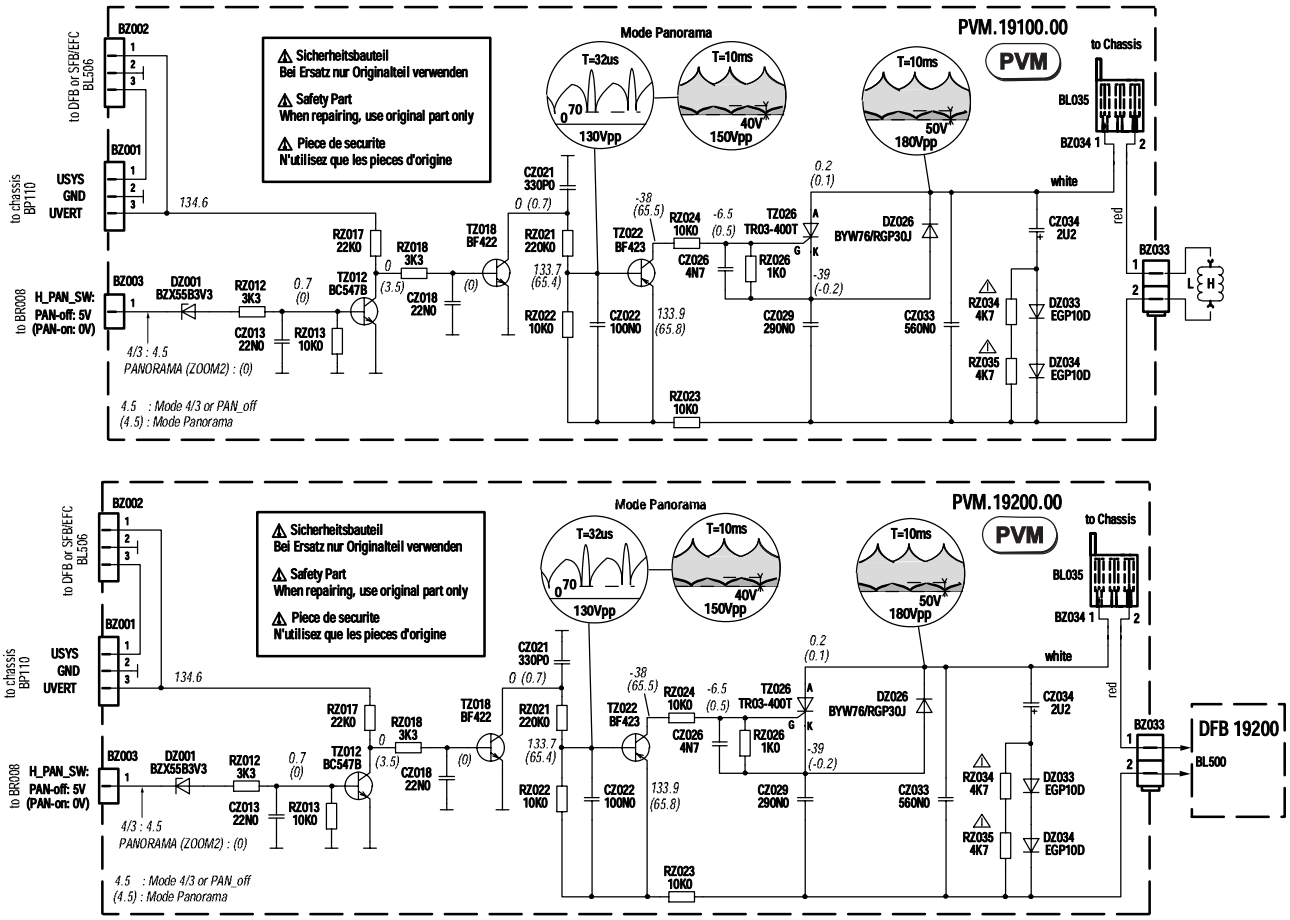
VIDEO AMPLIFIER BOARD - PLATINE AMPLIFICATEURS VIDEO - VIDEOVERSTÄRKERPLATTE - PIASTRA AMPLIFICATORE VIDEO - PLATINA AMPLIFICADOR VIDEO



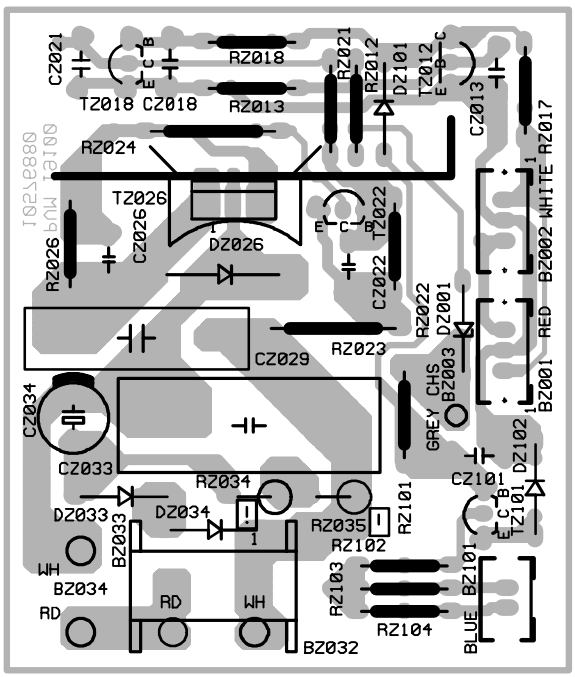
*	PB01	RB28	RB68	LB06	RB06	CB21/41/61
CRT 19001 00	10271580	–	–	–	47R0	–
CRT 19004 00	10343360	100k	120k	–	47R0	–
CRT 19104 00	10343360	–	–	68u0	–	4p7

▲Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden
▲Safety Part
When repairing, use original part only
▲Piece de securite
N'utilisez que les pieces d'origine

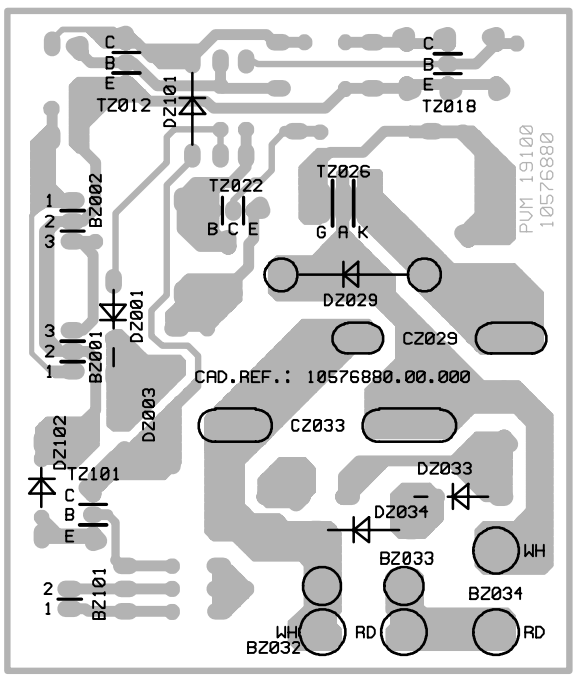
PANORAMA MODULE



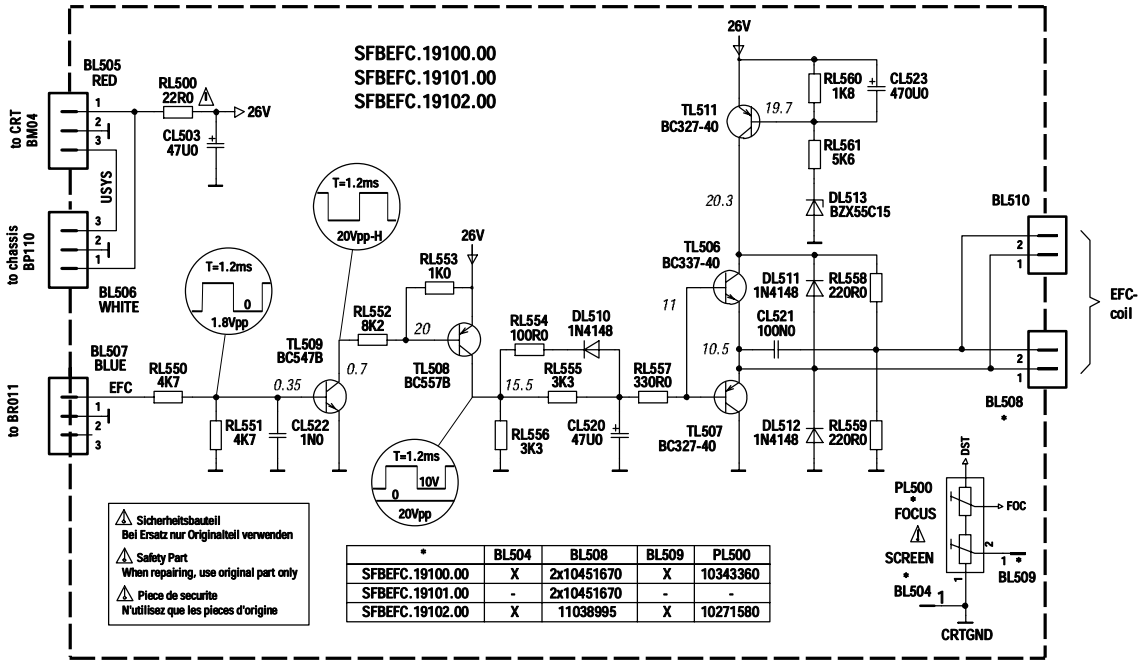
COMPONENT SIDE - CÔTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES



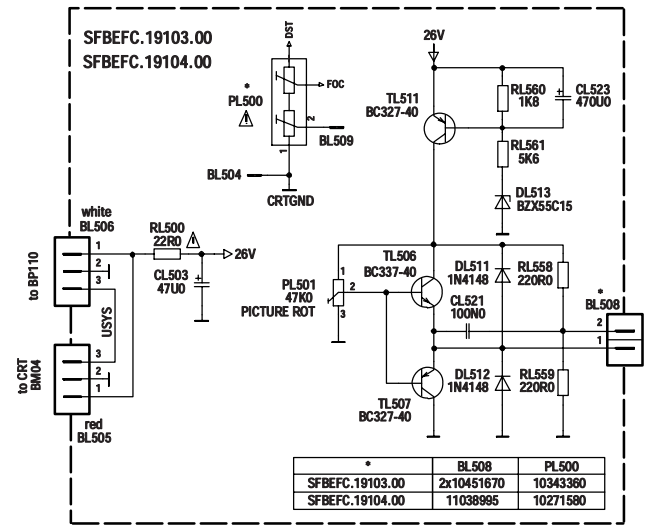
SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS



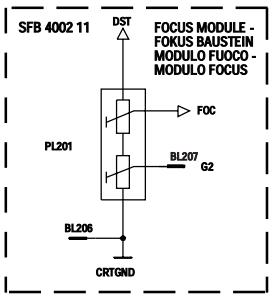
SINGLE FOCUS / EARTH-FIELD CORRECTION BOARD

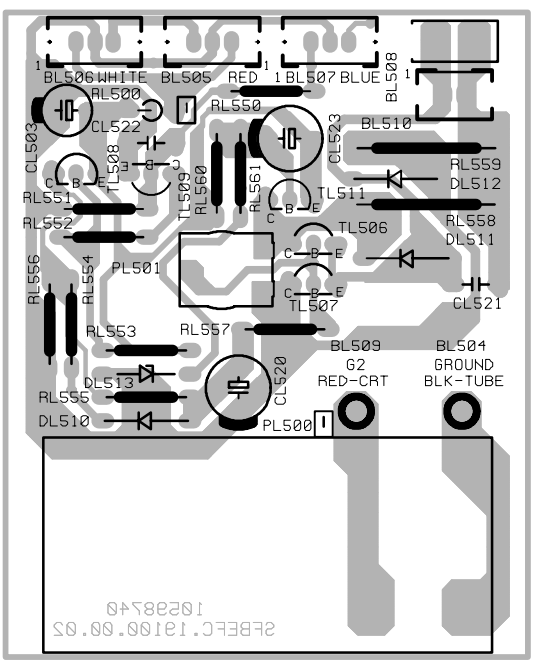


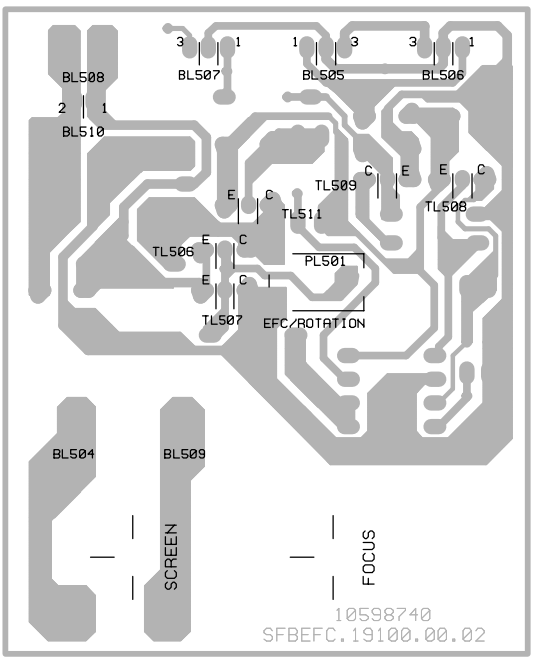
*	BL504	BL508	BL509	PL500
SFBEFC.19100.00	X	2x10451670	X	10343360
SFBEFC.19101.00	-	2x10451670	-	-
SFBEFC.19102.00	X	11038995	X	10271580



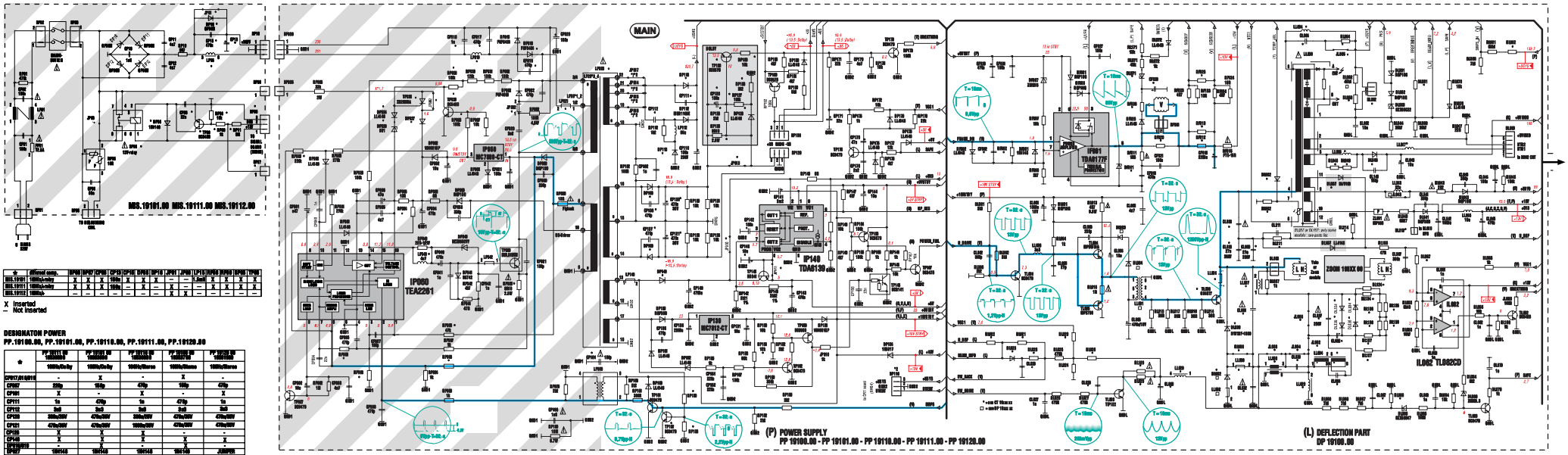
*	BL508	PL500
SFBEFC.19103.00	2x10451670	10343360
SFBEFC.19104.00	11038995	10271580







COMPLETE PCB DIAGRAM - SCHEMA PLATINE PRINCIPALE EQUIPEE - SCHALTUNG LEITERPLATTE KPL - SCHEMA PIASTRA COMPLETA - ESQUEMA PLATINA EQUIPADA



★	different comp.	RP60	RP67	CP60	CP73	CP105	RP65	RP18	JP61	JP66	LP15	RP66	RP68	TP65
MS.19101	100Hz+mini	X	X	X	100p	X	X	X	–	–	1.5mH	X	X	X
MS.19111	100Hz+mini	X	X	X	100p	X	X	–	X	–	–	X	X	X
MS.19112	100Hz	–	–	–	–	–	–	–	X	X	–	–	–	–

X Inserted
– Not inserted

DESIGNATON POWER
PP.19100.00, PP.19101.00, PP.19110.00, PP.19111.00, PP.19120.00

★	PP.19101.00 19000000	PP.19101.00 19000000	PP.19110.00 19000000	PP.19120.00 19000000	PP.19120.00 19000000
	100Hz/Mini/Sky	100Hz/Mini/Sky	100Hz/Mini	100Hz/Mini	100Hz/Mini
CP07/CP1015	-	X	-	X	-
CP07	220p	150p	470p	150p	470p
CP081	X	-	X	-	X
CP111	1n	470p	1n	470p	1n
CP112	2n2	2n2	2n2	2n2	2n2
CP120	330u/35V	470u/35V	330u/35V	470u/35V	470u/35V
CP121	470u/35V	470u/35V	1000u/35V	470u/35V	470u/35V
CP125	X	X	X	-	-
CP140	X	X	X	X	X
CP1401/1402	-	X	-	X	-
DA1001	1N4148	1N4148	1N4148	1N4148	JUMPER
DP1001/1004	-	X	X	X	-
DP100/1005	BYW03-150	BYW03-150	-	RGP10D	RGP10D
DP110	RGP10D	RGP10D	RGP10D	RGP10D	RGP10D
DP115	BUH100	BUH115HC	BUH115C	BUH115HC	BUH100
DP120	X	X	X	X	X
DP140	BYW29-150	BYW03-150	RGP10D	RGP10D	RGP10D
JP002	X	JUMPER	X	JUMPER	X
JP005	-	-	-	-	X
JP010/011	-	-	-	-	-
JP015	-	-	-	X	X
JP016	100V	100V	100V	100V	100V
JP018	100V	100V	100V	100V	100V
JP019	100V	100V	100V	100V	100V
JP017	140V	140V	140V	140V	140V
LP002	-	-	-	RGP10D	RGP10D
LP060	10mH/2A	10mH/2A	10mH/2A	10mH/2A	10mH/2A
LP061	-	X	-	X	-
LP062	4u7	2u2	4u7	2u2	4u7
LP063	JUMPER	X	JUMPER	X	JUMPER
RP00/0003	X	X	X	X	-
RP005	68R	47R	68R	47R	68R
RP006	-	-	-	-	-
RP008	1R	1R2	1R	1R2	1R
RP009	680R	470R	680R	470R	680R
RP1001/1005	X	X	X	-	-
RP1071/1121	X	X	X	-	X
RP120	X	X	X	X	-
RP130	22R	18R	24R	18R	24R
RP1300	200R	68R	270R	68R	270R
RP131	10R	12R	8R2	12R	10R
TP00/005	X	X	X	X	-
TP120	X	X	X	X	-
TP102	-	X	-	X	-

X Inserted
– Not inserted

DESIGNATON POWER
PP.19100.00, PP.19101.00, PP.19110.00, PP.19111.00, PP.19120.00

★	PP.19111.00 19000000	PP.19111.00 19000000	PP.19120.00 19000000	PP.19120.00 19000000
	100Hz/Sky	100Hz/Mini/Sky	100Hz/Mini	100Hz/Mini
CP07/CP1015	-	X	-	X
CP07	220p	150p	470p	150p
CP081	X	-	X	-
CP111	1n	470p	1n	470p
CP112	2n2	2n2	2n2	2n2
CP120	330u/35V	470u/35V	330u/35V	470u/35V
CP121	470u/35V	470u/35V	1000u/35V	470u/35V
CP125	X	X	X	-
CP140	X	X	X	X
CP1401/1402	-	X	-	X
DA1001	1N4148	1N4148	1N4148	JUMPER
DP100/1005	-	X	X	-
DP100/1005	BYW03-150	BYW03-150	-	RGP10D
DP110	RGP10D	RGP10D	RGP10D	RGP10D
DP115	BUH100	BUH115HC	BUH115C	BUH115HC
DP120	X	X	X	X
DP140	BYW29-150	BYW03-150	RGP10D	RGP10D
JP002	X	JUMPER	X	JUMPER
JP005	-	-	-	-
JP010/011	-	-	-	-
JP015	-	-	X	X
JP016	100V	100V	100V	100V
JP018	100V	100V	100V	100V
JP019	100V	100V	100V	100V
JP017	140V	140V	140V	140V
LP002	-	2u2	-	RGP10D
LP060	10mH/2A	10mH/2A	10mH/2A	10mH/2A
LP061	-	X	-	X
LP062	4u7	2u2	4u7	2u2
LP063	JUMPER	X	JUMPER	X
RP00/0003	X	X	X	X
RP005	68R	47R	68R	47R
RP006	-	-	-	-
RP008	1R	1R2	1R	1R2
RP009	680R	470R	680R	470R
RP1001/1005	X	X	X	-
RP1071/1121	X	X	X	-
RP120	X	X	X	X
RP130	22R	18R	24R	18R
RP1300	200R	68R	270R	68R
RP131	10R	12R	8R2	12R
TP00/005	X	X	X	X
TP120	X	X	X	X
TP102	-	X	-	X

X Inserted
– Not inserted

Safety Part.
When repairing, use original part only
Pièce de securité
N'utilisez que les pièces d'origine
Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden
Componenti di sicurezza
Per la riparazione utilizzare solo componenti originali
Piza de seguridad
Utilice solo plezas originales

Note :
Power Supply primary circuit measurements.
- Use only (GND1) connection point.

Attention :
Mesure dans le bloc alimentation
- Utiliser la masse du bloc alimentation (GND1).

Achtung :
Bei Messungen im Primärnetzteil
- Primärmetzteilmasse verwenden (GND1).

Atenzione :
misure nell'alimentatore primario
- usare masse alimentazione primario (GND1).

Cuidado :
Medida en el bloque de alimentacion
- Utilizar la masa del bloque de alimentacion (GND1).

Use Isolating mains transformer
Utilise un transformateur isolateur du secteur
Einen Trenntrafo verwenden
Utilizar un transformador aislador de red
Utilizare un transformatore per isolarvi dalla rete

	Deflection - Basis Partlists
□	100Hz
	DP 19100.00
	19 35 94 00
DL002/04	–
DL002	BY203-600
DL003/04	BY97-1000
JL002	–
LL001	19 45 97 00
LL001	19 35 94 00
RL002	✕

X Inserted
– Not inserted

★	CT 19100 34 19 35 93 10 20"90° AK	CT 19100 37 19 35 93 30 20"90° SVHAN 20"90° SVHAN	CT 19102 37 19 35 93 10 20"90° SVHAN 20"90° SVHAN	CT 19105 37 19 35 93 30 20"90° SVHAN 20"90° SVHAN	CT 19111 34 19 45 93 10 20"90° SVHAN 20"90° SVHAN	CT 19101 34 19 52 93 00 20"90° SVHAN 20"90° SVHAN	CT 19201 40 19 57 93 00 21"90° SVHAN 21"90° SVHAN
		80-Tube	100 Version	80-Tube	100 Version	100 Version	100/Mini/PVR
DL002	–	–	–	–	–	X	X
DP002	680p	680p	680p	680p	2n2	2n2	2n2
CP020	1n0	1n0	1n0	1n0	1n0	1n0	1n0
CL020	–	–	–	–	–	–	–
CL029	1n0	1n0	1n0	1n0	1n0	1n0	1n0
CL039	2n2	2n2	2n2	2n2	470n0	470n0	470n0
CL030	1n5/250V	1n5/250V	1n5/250V	1n5/250V	1n5/250V	2x 2n7/250V	2x2n7/250V
CL031	11n0/250V	11n0/250V	11n0/250V	12n2/250V	11n0/250V	11n0/250V	11n0/250V
CL032	27n0/400V	27n0/400V	27n0/400V	22n0/315V	27n0/400V	33n0/315V	33n0/315V
CL033	–	–	–	–	–	68n0/400V	68n0/400V
CL034	–	12n/400V	12n/400V	12n/400V	–	12n/400V	12n/400V
CL035	–	2n2	2n2	2n2	2n2	2n2	–
CL037	470n0/400V	470n0/400V	470n0/400V	470n0/400V	680n0/250V	680n0/250V	680n0/250V
CL007	–	–	–	–	100n0	100n0	100n0
CL004	2n2/400V	2n2/400V	2n2/400V	2n2/400V	2n2/400V	2n2/400V	2n2/400V
CL311	470p0	470p0	470p0	470p0	470p0	470p0	470p0
DP011	BYW98 GL.W	BYW98 GL.W	BYW98 GL.W	BYW98 GL.W	BYW98 GL.W	BYW98 GL.W	BYW98 GL.W
DL005	–	–	–	–	–	–	–
DL002	BYW29F-600	BYW29F-600	BYW29F-600	BYW29F-600	BYW29F-600	BYW29F-600	BYW29F-600
DL003/04	–	BSP160	BSP160	BSP160	BSP160	BSP160	BSP160
DL006	BAW156RE	BAW156RE	BAW156RE	BAW156RE	BAW156RE	BAW156RE	BAW156RE
DL007	BAW156	BAW156	BAW156	BAW156	BAW156	BAW156	BAW156
DL107	LL4148	LL4148	LL4148	LL4148	LL4148	LL4148	LL4148
DL071	BZX85C20	BZX85C20	BZX85C18	BZX85C18	BZX85C24	BZX85C24	BZX85C24
DL002	–	18/41-48	18/41-48	18/41-48	18/41-48	18/41-48	18/41-48
RL004/06	–	–	–	–	–	–	–
JL002	X	–	–	–	X	–	–
JL003	X	X	X	X	X	–	–
JL004	X	X	X	X	X	–	–
JL005	–	–	–	–	–	–	–
JL006	–	X	X	X	X	X	X

Note : the last two numbers of the CT xxxx part list name indicates the system voltage.
e.g. CT 19005 31 Usys 131V →

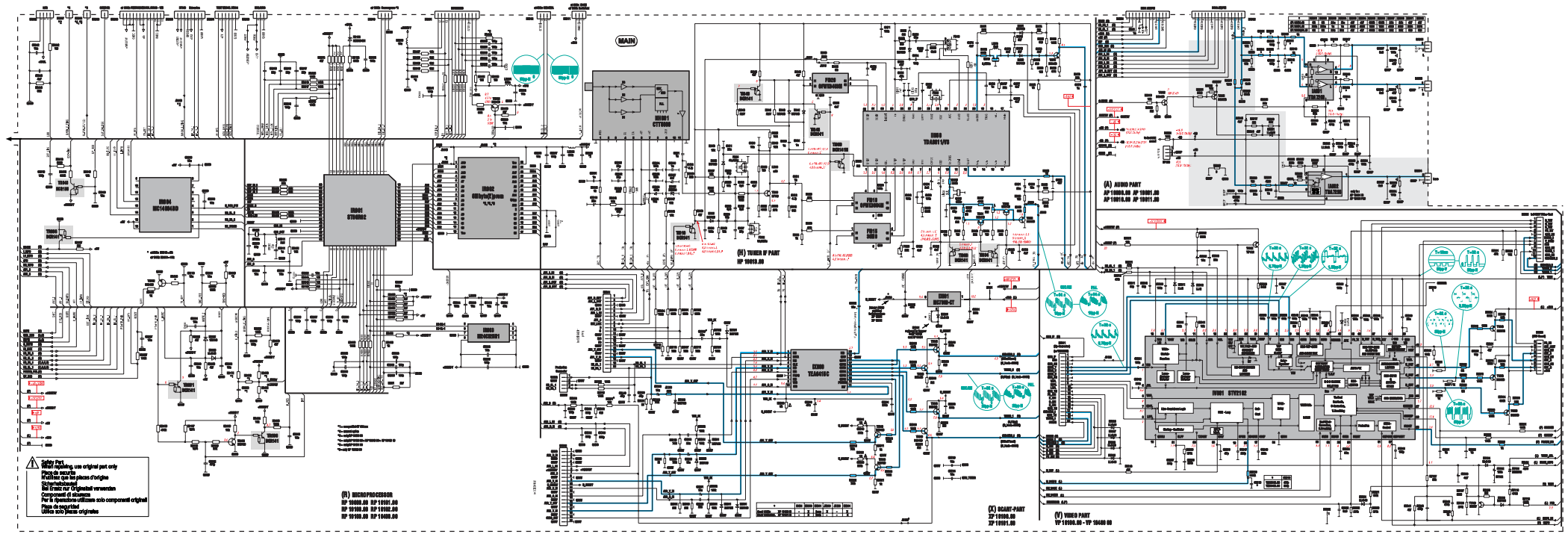
Nota: Los dos últimos números de la denominación CT xxxx, indica la tensión Usys
e.g. CT 19005 31 Usys 131V →

★	CT 19100 34 20"90° AK	CT 19100 37 20"90° SVHAN 80-Tube	CT 19102 37 20"90° SVHAN 100 Version	CT 19105 37 20"90° SVHAN 80-Tube	CT 19111 34 20"90° SVHAN 100 Version	CT 19101 34 20"90° SVHAN 100 Version	CT 19201 40 21"90° SVHAN 100/Mini/PVR
LL009	19 66 11 70	19 61 66 70	19 61 66 70	19 61 66 70	19 62 66 00	19 62 66 00	19 67 67 40
LL020	19 15 42 70	19 15 42 70	19 15 42 70	19 15 42 70	19 54 70 00	19 54 70 00	19 54 70 00
LL021	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
LL008	–	–	–	–	19 62 27 00	19 62 27 00	19 62 27 00
LL004	–	19 15 32 70	19 15 32 70	19 15 32 70	–	19 15 32 70	19 15 32 70
LL007	19 61 62 30	19 61 62 30	19 61 62 30	19 61 62 30	19 61 62 30	19 61 62 30	19 61 62 30
LL048	22n0	22n0	22n0	22n0	22n0	22n0	22n0
LL047	12n0	12n0	12n0	12n0	12n0	12n0	12n0
LL054	39n0	39n0	39n0	39n0	39n0	39n0	39n0
RP002	10R	10R	10R	10R	10R	10R	10R
RP012	10R	10R	10R	10R	10R	10R	10R
RP013	10R	10R	10R	10R	10R	10R	10R
RP020	27R0	27R0	27R0	–	–	–	–
RP025	47R	47R	47R	82R0	43R0	150R0	150R0
RP008	1R0	1R0	1R0	1R0	1R0	1R0	1R0
RL029	7R5	7R5	7R5	6R49	7R15	49R	49R
RL027	–	–	–	–	–	–	–
RL024	4k42	4k42	4k42	4k99	4k42	2k47	2k47
RL026	6R8	6R8	6R8	12R0	6R8	39R0	39R0
RL009	39R	39R	39R	39R	39R	–	–
RL004/06	3k3	3k3	3k3	3k3	3k3	3k3	3k3
RL051	27R0	27R0	27R0	27R0	27R0	27R0	27R0
RL053	82R	82R	82R	82R	82R	82R	82R
RL057	68R	68R	68R	68R	68R	68R	68R
RL006	4k22	4k22	4k22	4k22	4k22	–	–
RL052	68R	6R8	6R8	6R8	6R8	39R	6k49
RL054	27R	–	–	–	–	–	–
RL002	–	47	47	47	47	47	47
RL15/405	–	75R	75R	75R	75R	75R	–
RL52/407	–	75R	75R	75R	75R	75R	–
RL151	–	–	–	–	39R	39R	39R
RL54/406	–	75R	75R	75R	75R	75R	–
RL150/407	–	75R	75R	75R	75R	75R	–
RL211	–	6k8	6k8	6k8	6k8	6k8	6k8
RL214	–	–	–	6k8/1W	–	–	–
TL000	0364077	0364077	0364077	0364077	0364077	0364077	0364077
ZD000	–	–	–	–	–	–	–

Updated 11 / 98

ICC19 100 Hz
First Issue 09 / 97

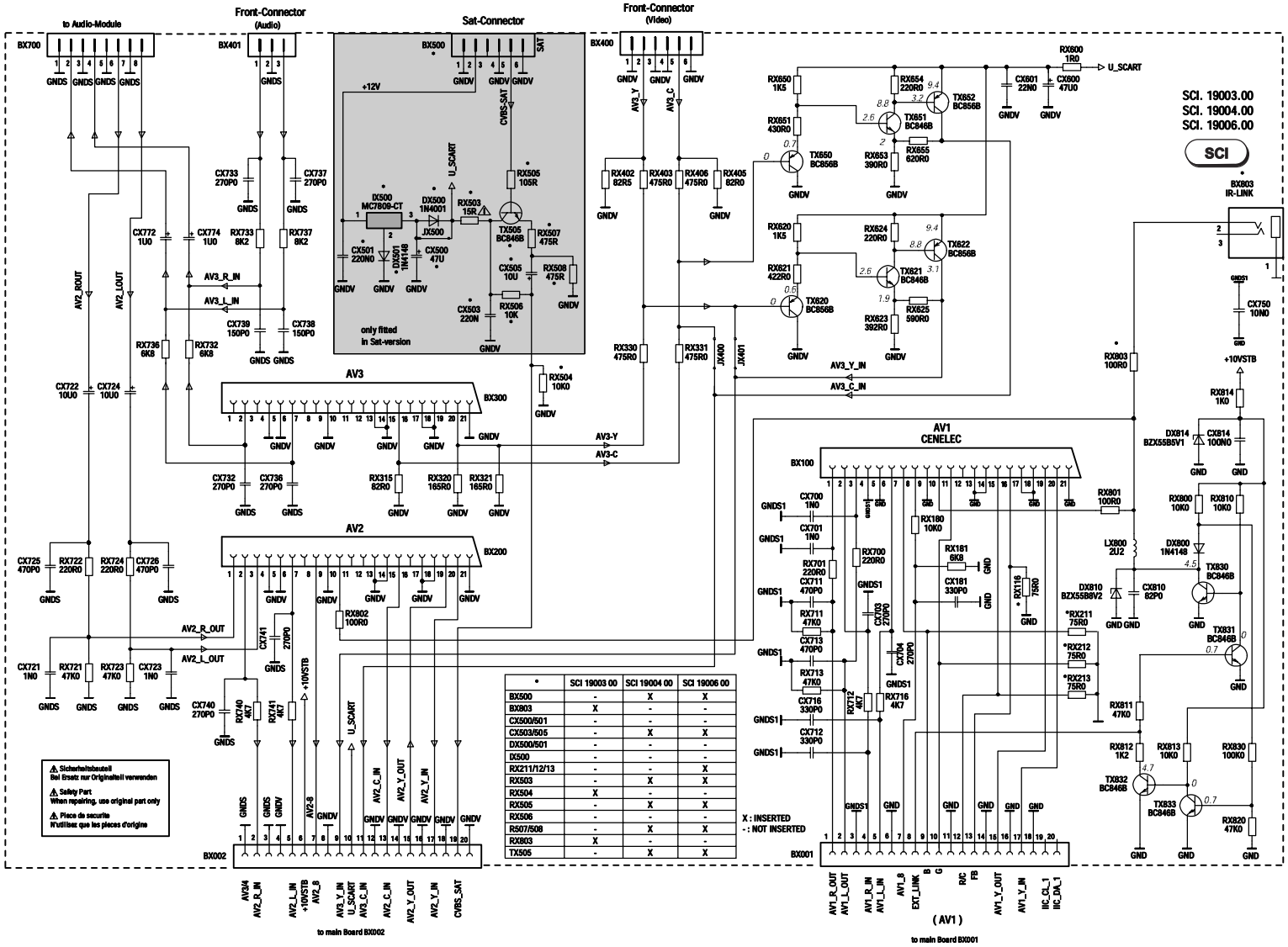
COMPLETE PCB DIAGRAM - SCHEMA PLATINE PRINCIPALE EQUIPEE - SCHALTUNG LEITERPLATTE KPL - SCHEMA PIASTRA COMPLETA - ESQUEMA PLATINA EQUIPADA



ICC19 100 Hz
First issue 09 / 97

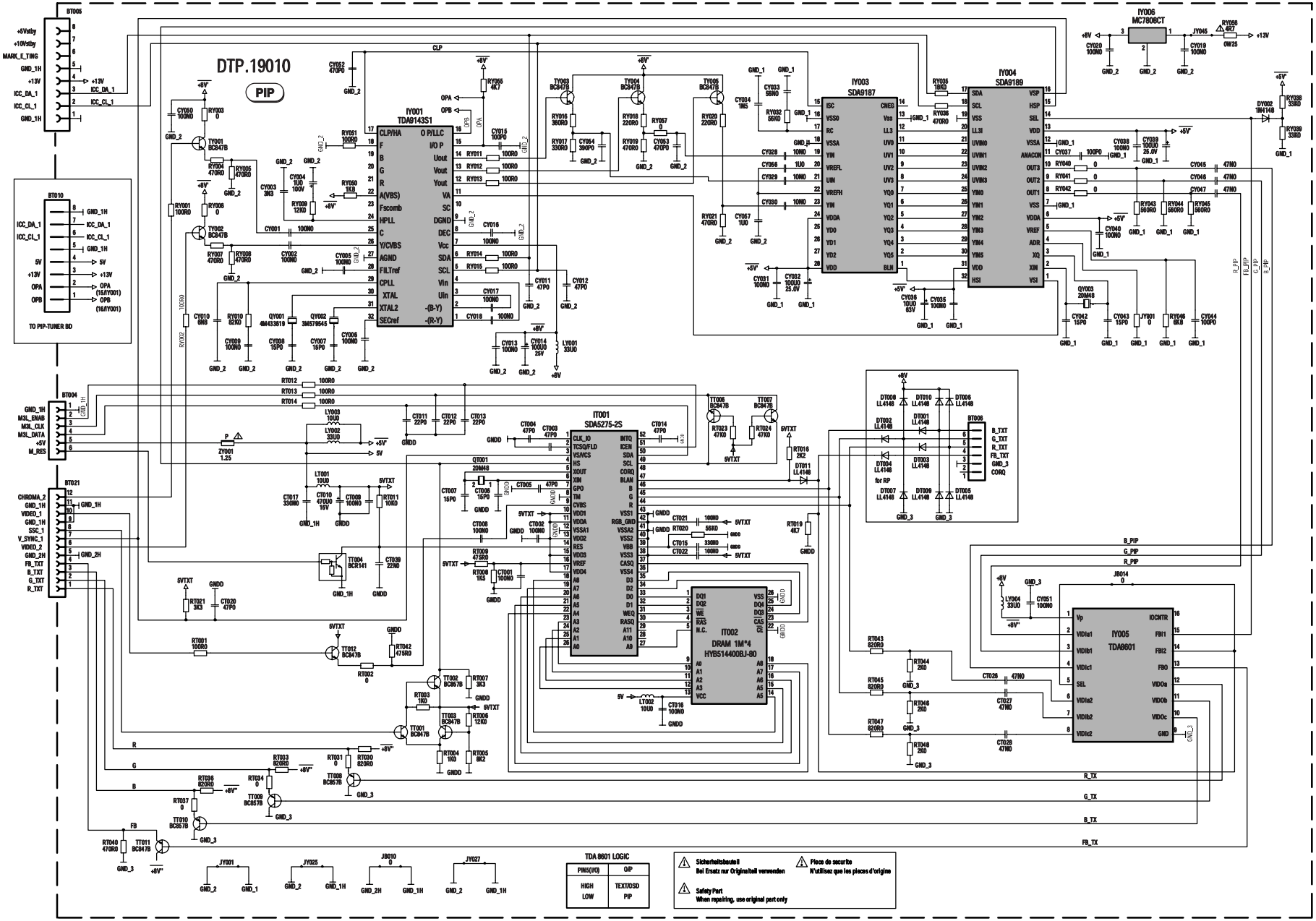
Updated 11 / 98

SCART INTERFACE MODULE - MODULE INTERFACE PERITELEVISION - SCART INTERFACE - MODULO PRESA PERITEL - MODULO EUROTOMA



	SCI 19003 00	SCI 19004 00	SCI 19006 00
BX500	-	X	X
BX803	X	-	-
CX500/501	-	-	-
CX503/505	-	X	X
DX500/501	-	-	-
DX500	-	-	-
RX211/12/13	-	-	X
RX503	-	X	X
RX504	X	-	-
RX505	-	X	X
RX506	-	-	-
R507/508	-	X	X
RX803	X	-	-
TX505	-	X	X

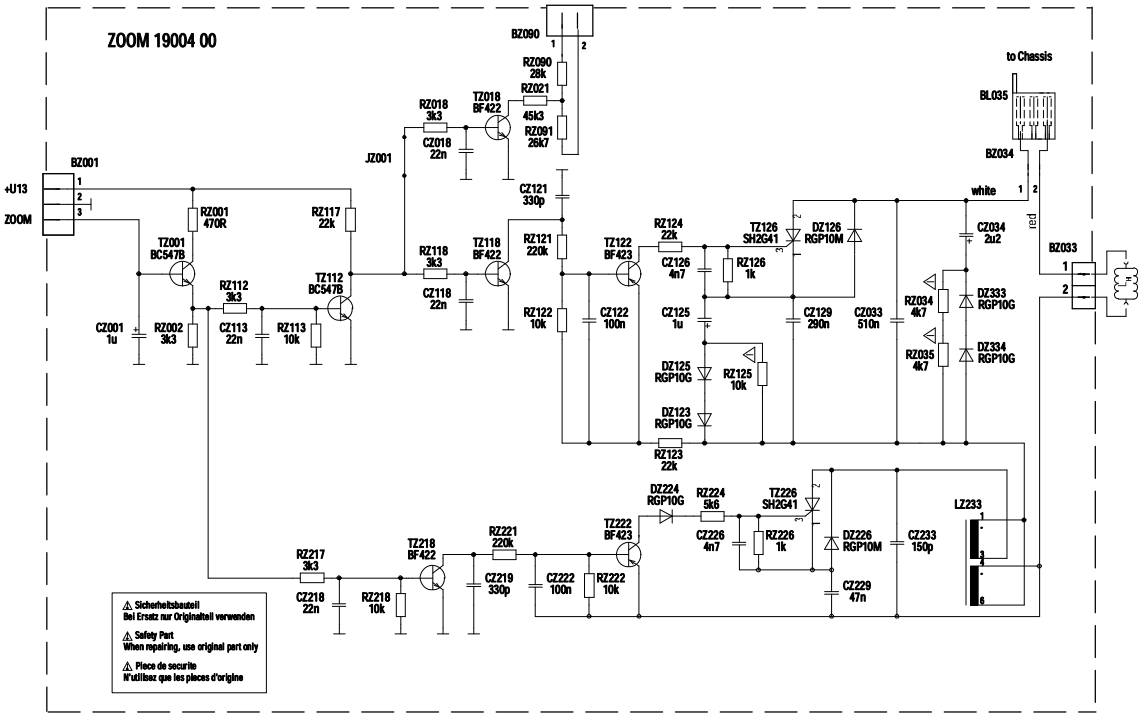
PICTURE IN PICTURE - MODULE IMAGE DANS L'IMAGE - BILD IM BILD BAUSTEIN - MODULO IMMAGINE NELL' IMMAGINE - MODULO IMAGEN EN IMAGEN



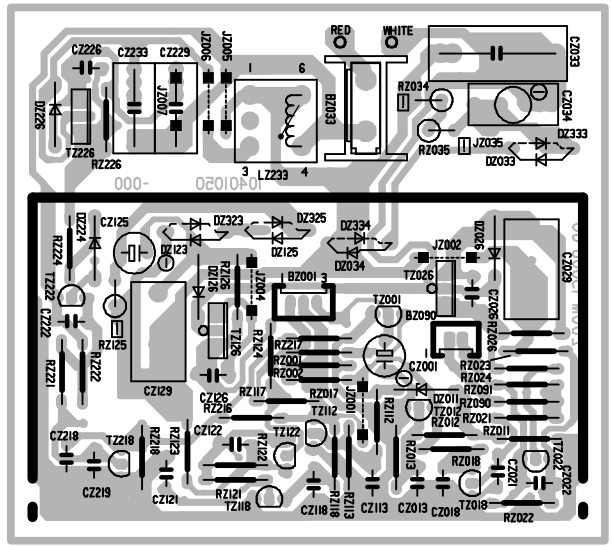
ICC19 100 Hz
First issue 11 / 98

Updated 11 / 98

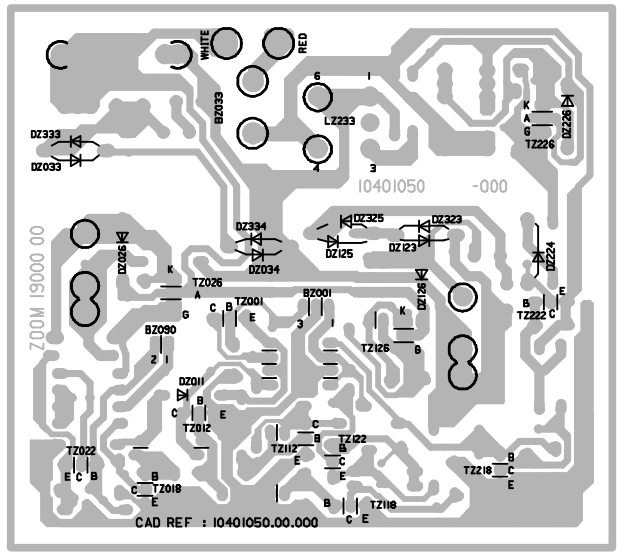
ZOOM 19004 00



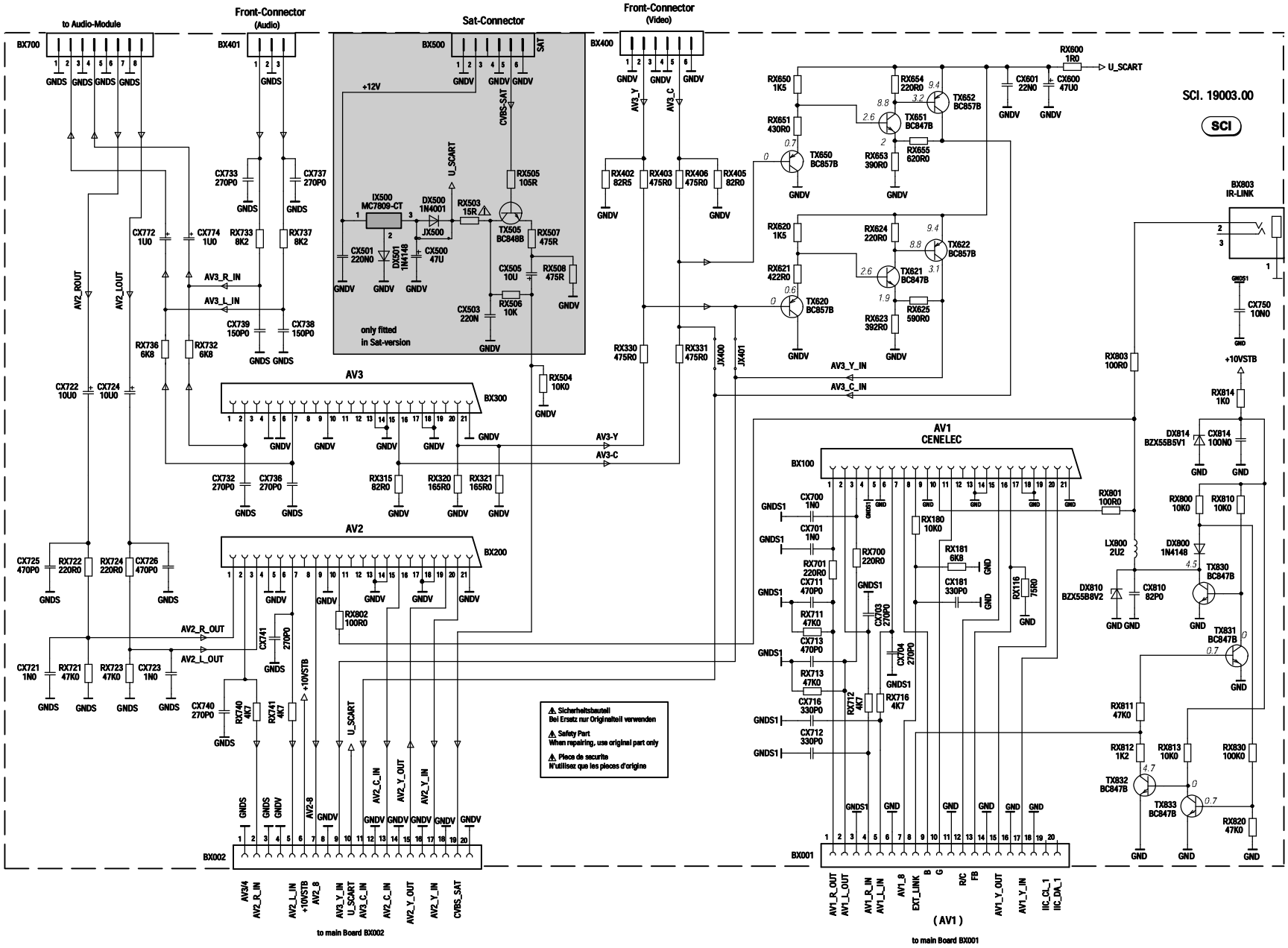
COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES



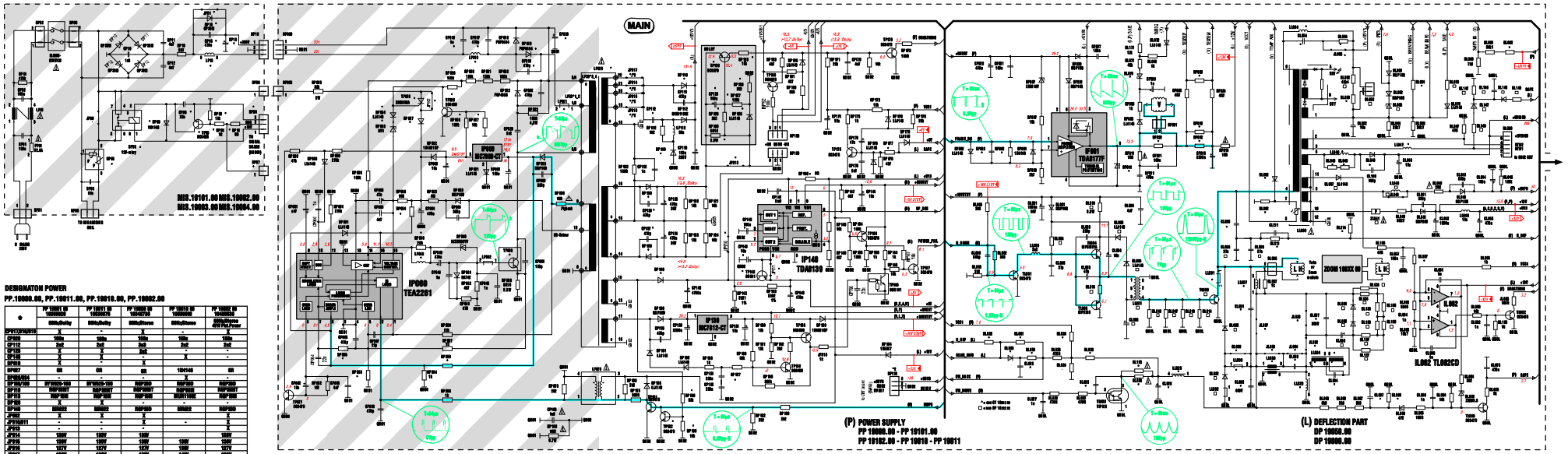
SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE -
LADO SOLDADURAS



SCART INTERFACE MODULE - MODULE INTERFACE PERITELEVISION - SCART INTERFACE - MODULO PRESA PERITEL - MODULO EUROTOMA



COMPLETE PCB DIAGRAM - SCHEMA PLATINE PRINCIPALE EQUIPEE - SCHALTUNG LEITERPLATTE KPL - SCHEMA PIASTRA COMPLETA - ESQUEMA PLATINA EQUIPADA



DESIGNATON POWER

PP.19000.00, PP.19011.00, PP.19010.00, PP.19002.00

	PP 19001.00 19000000	PP 19011.00 19010070	PP 19002.00 19024700	PP 19010.00 19000000	PP 19000.00 19000000
	220Vac/Italy	220Vac/Italy	220Vac/Korea	220Vac/Korea	220Vac/Korea 60Hz Pal Power
CP117/118/119	X	-	X	-	X
CP109	100u	100u	100u	100u	100u
CP112	2n2	2n2	2n2	2n2	2n2
CP139	X	X	2n2	-	-
CP140	X	X	-	X	-
CP512	-	-	X	-	-
CP507	68	68	68	150/160	68
CP508/509	-	-	-	-	X
DP 19010/00	BY203/20-1500	BY203/20-1500	RGP15D	RGP15D	RGP15D
DP110	RGP15D	RGP15D	RGP15D	RGP15D	RGP15D
DP113	RGP15D	RGP15D	RGP15D	BA157/15DC	RGP15D
DP120	X	X	-	-	-
DP130	BA6622	BA6622	RGP15D	BA6622	RGP15D
JP000	X	X	X	-	X
JP010/011	-	-	X	-	X
JP013	-	-	-	-	X
JP014	130V	130V	130V		130V
JP015	130V	130V	130V	130V	130V
JP016	167V	167V	167V	166V	167V
JP017	130V	130V	130V	145V	130V
LP010	100u	X	100u	100u	100u
LP000	10000030	10000030	10070130	10000029	10070130
LP001	10000030	10000030	10070130	10000029	10070130
LP021	X	-	X	X	X
LP040	4u7	4u7	4u7	3u3	4u7
RP000/009	-	-	-	X	-
RP007	-	-	-	X	-
RP008	140V	140V	140V	140V	140V
RP004	680	680	680	680	680
RP005	10k	10k	10k	47k	10k
RP006	10k	10k	10k	10k	10k
RP009	3k9	3k9	3k9	3k27	3k9
RP100/129	X	X	-	-	-
RP107/108	X	X	-	-	-
RP109	X	-	-	-	-
RP109/129	-	-	-	X	-
RP110	X	X	-	X	-
RP127	100k	100k	100k	120k	100k
RP177	33k	33k	33k	100k	33k
TP000/003	-	-	X	X	-
TP009	RGP10GP1	RGP10GP1	RGP10GP1	RGPL10GP1	RGP10GP1
TP139	X	X	-	X	-
TP140	X	X	-	X	-
TP160	-	-	-	X	-

X Inserted
– Not Inserted

	different comp.	RP09	RP07	RP08	CP15	CP16	RP05	RP06	JP01	JP00	LP15	RP03	RP04	RP09	RP05	TP03
MIS.19101	100Vac/Italy	X	X	X	100u	X	X	X	–	–	1,5mH	10R	X	X	X	X
MIS.19002	60Hz	–	–	–	100u	X	–	–	X	2mH	20R	–	–	–	–	–
MIS.19003	60Hz/Italy	X	X	X	100u	X	X	X	–	2mH	10R	X	X	X	X	X
MIS.19004	60Hz/NTSC Pal Pow.	–	–	–	–	X	–	X	–	X	2mH	20R	–	–	–	–
MIS.19002	60Hz	–	–	–	–	100u	–	–	X	–	–	20R	–	–	–	–
MIS.19101	100Vac/Italy	X	X	X	100u	–	X	–	X	–	–	10R	X	X	X	X

X Inserted
– Not Inserted

Part of board connected to mains supply.
Partie du chassis reliée au secteur.
Primärseite des Netzteils.
Parte dello chassis collegata alla rete.
Parte del chassis conectada a la red.

⚠ Use isolating mains transformer
Utilise un transformateur isolateur du secteur
Einen Trenntrafo verwenden
Utilizar un transformador aislador de red
Utilizzare un trasformatore per isolarvi dalla rete

Note :
Power Supply primary circuit measurements.
- Use only (GND1) connection point.

Attention :
Mesure dans le bloc alimentation
- Utiliser la masse du bloc alimentation (GND1).

Achtung :
Bei Messungen im Primärnetzteil
- Primärmetzteilmasse verwenden (GND1).

Attenzione :
misure nell'alimentatore primario
- usare massa alimentazione primario (GND1).

Cebida :
Medida en el bloque de alimentacion
- Utilizar la masa del bloque de alimentacion (GND1).

⚠ Safety Part.
What repairing, use original part only
Pièce de sécurité
N'utilisez que les pièces d'origine
Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden
Componenti di sicurezza
durante la ripazione usare componenti originali
Pieza de seguridad
Utilice solo piezas originales

□	Deflection - Basic Portfolio	
	60Hz 220Vac	60Hz
	DP 19000.00 19 04 00 70	DP 19000.00 19 04 00 00
CL000	–	–
CL006	220n/250V	220n/250V
CL008	–	2n2/250V
CL009	27n	27n
CL010	27n	27n
CL100	–	–
DL300/305	X	X
DL000	BY527-1500	BY527-1500
DL006	BY476	BY476
DL004/005	–	RGP15D
DL008	SCX3903B	SCX3903B
DL007	X	X
DL147/148	–	–
JL000	X	X
LL001	19 01 01 10	19 01 01 10
LL002	–	–
LL003	Jumper	Jumper
LL005	–	–
RP010	10R	10R
RL004	15R	15R
RL013	10R	10R
RL014	68R	68R
RL015	39R	39R
RL016	68R	68R
RL016/017	68R	68R
RL01	*	*
RL019	39R	39R
RL021	68R	68R
RL104/107	–	75R
RL104/107	–	75R
RL140	–	–
RL142	–	–
RL143	–	–
TL000	SUY40CPT1010	SUY40CPT1010
TL041	SUP40R	SUP40R

★	Deflection - Fixies 2xxx rabbit Portfolio		
	CT 19005 31 19 01 00 00	CT 19002 32 19 05 10 20	CT 19001 37 19 04 00 00
	60Hz 21"/4:3-21"/5" 4/3	60Hz 25-29"/5" 4/3	60Hz 220Vac 21"/4:3-21"/5" 16/9
CP002	1n5	1n5	1n5
CL003	10n	10n	10n
CL005	10	47n	47n
CL009	2n2/400V	4n7/400V	4n7/400V
CL006	1n5/63V	1n5/63V	1n5/63V
CL007	100n/63V	100n/63V	100n/63V
CL012	330n/63V	2n2/400V	2n2/400V
CL013	–	1n5/250V	1n5/250V
CL014	–	–	–
CL017	470n/250V	680n/250V	–
CL027	470n/250V	680n/250V	–
CL028	–	100n/250V	100n/250V
CL034	4n7/250V	4n7/250V	4n7/250V
CL011	–	–	–
DP011	19 05 10 00	19 05 10 00	19 05 10 00
DA020	3n9/1kV	3n9/1kV	3n9/1kV
DL040	BZX84C5V6	BZX84C5V6	BZX84C5V6
DL071	BZX84C5V6	BZX84C5V6	BZX84C5V1
JL000	–	–	–
JL002	X	X	X
JL009	X	X	X
JL004	X	–	–
JL005	–	–	X
JL006	–	–	–
LL000	19 01 77 20	19 0177 40	19 01 77 00
LL020	19 07 74 20	19 00 00 00	19 00 00 00
LL009	–	–	–
LL031	LF05A0.000	LF05A0.000	LF05A0.000
LL000	–	–	–
LL026	–	–	–
LL027	24u	24u	24u
LL040	–	–	–
LL047	33u	33u	33u
LL026	24u	24u	24u

★	Deflection - Fixies 3xxx rabbit Portfolio		
	CT 19005 31 19 01 00 00	CT 19002 32 19 05 10 20	CT 19001 37 19 04 00 00
	60Hz 21"/5"-21"/4" 4/3	60Hz 25-29"/5" 4/3	60Hz 220Vac 21"/5"-21"/4" 16/9
CP002	1n5	1n5	1n5
DP002	10R	10R	10R
DP003	10R	10R	10R
DP004	220R	220R	–
DP005	2k2	2k2	2k2
DL004	3k83	3k83	3k83
DL021	–	–	–
DL023	10R	10R	10R
DL024	10R	10R	10R
DL025	3k74	3k74	3k74
DL026	2k2	2k2	2k2
DL000/00	0R	0R	0R
DL001	2k2	2k2	2k2
DL002	0R1	0R	0R
DL027	47k2	10k2	47k2
DL042	10R	–	10R
DL051	68k2	68k2	81k9
DL054	10R	10R	10R
DL000	–	–	–
DL123	–	–	–
DL211	10k	10k	10k
DL214	2k7	2k7	2k7
JL000 MIS19L.0	–	–	19 20 10 40

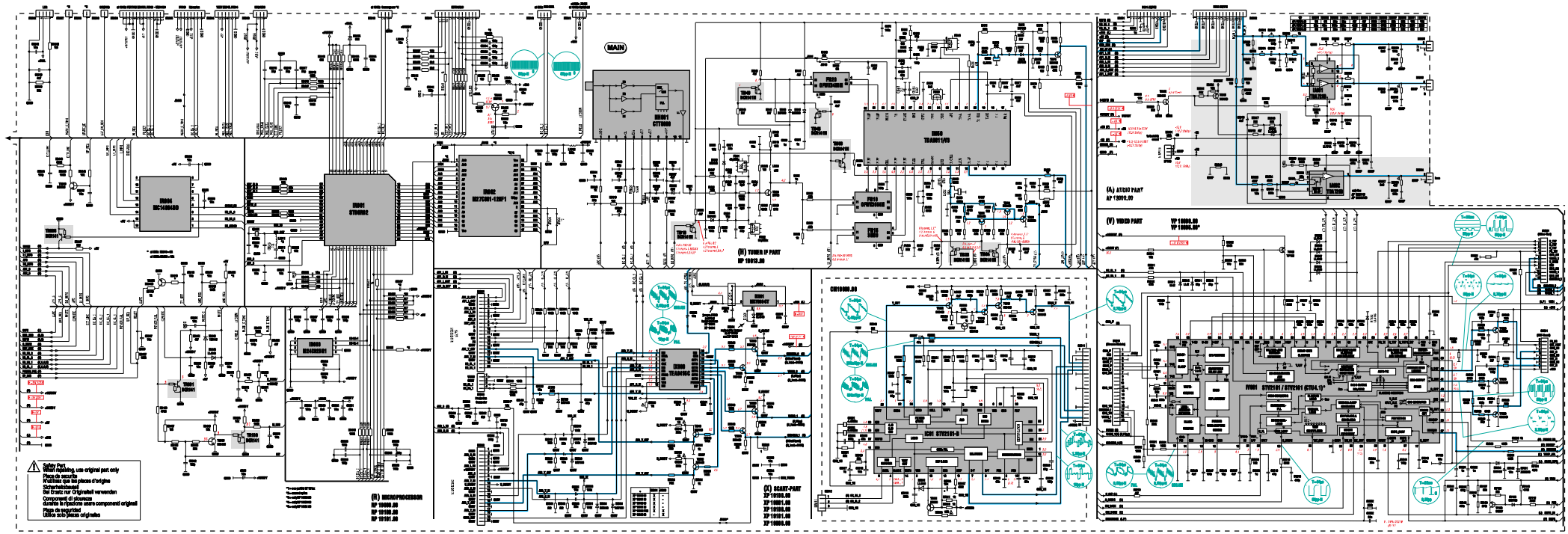
Note : the last two numbers of the CT xxxx part list name indicates the system voltage.
e.g. CT 19005 31 Usys 131V →

Nota : Los dos últimos números de la denominación CT xxxx, indica la tensión Usys
e.g. CT 19005 31 Usys 131V

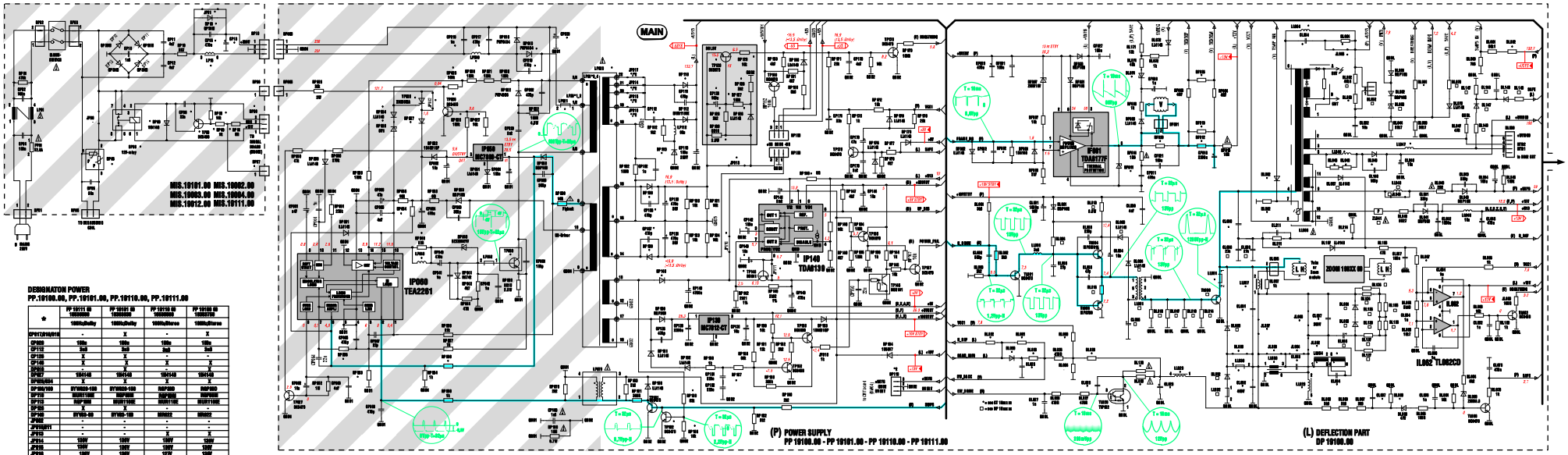
X Inserted
– Not Inserted

ICC19 50 Hz
First issue 09 / 97

COMPLETE PCB DIAGRAM - SCHEMA PLATINE PRINCIPALE EQUIPEE - SCHALTUNG LEITERPLATTE KPL - SCHEMA PIASTRA COMPLETA - ESQUEMA PLATINA EQUIPADA



COMPLETE PCB DIAGRAM - SCHEMA PLATINE PRINCIPALE EQUIPEE - SCHALTUNG LEITERPLATTE KPL - SCHEMA PIASTRA COMPLETA - ESQUEMA PLATINA EQUIPADA



DESIGNATION POWER
PP.10108.00, PP.10101.00, PP.10110.00, PP.10111.00

★	PP 10111 00 100000000	PP 10101 00 100000000	PP 10110 00 100000000	PP 10108 00 100000000
	100Hz/Dalby	100Hz/Dalby	100Hz/Stereo	100Hz/Stereo
KEY1/2/10/11	-	X	-	X
CP400	100u	100u	100u	100u
CP112	2u2	2u2	2u2	2u2
CP135	X	X	-	-
CP140	X	X	X	X
CP200	-	X	-	X
CP427	1N4148	1N4148	1N4148	1N4148
CP428/429	X	X	X	X
DP100/109	BYW95-150	BYW95-150	BAP1000	BAP1000
DP110	BUH115HE	BUH115HE	BAP1000	BAP1000
DP112	BAP1000	BUH115HE	BUH115HE	BUH115HE
DP120	X	BUH115HE	-	-
DP140	BYW95-150	BYW95-150	BB832	BB832
JP002	-	-	-	-
JP010/011	-	-	-	-
JP013	-	-	X	X
JP014	100V	100V	100V	100V
JP015	100V	100V	100V	100V
JP016	100V	100V	127V	100V
JP017	140V	140V	140V	140V
LP010	-	100u	-	100u
LP020	10007020	10007020	10007020	10007070
LP021	-	X	-	X
LP040	2u2	2u2	2u2	2u2
RP002/009	X	X	X	X
RP007	X	X	X	X
RP008	120W	120W	120W	120W
RP084	680	680	680	680
RP089	-	47k	-	47k
RP095	11k	12k1	11k	12k1
RP096	402R	392R	402R	392R
RP100/109	X	X	-	-
RP107/109	X	X	-	-
RP108	X	X	-	-
RP109/109	X	X	X	X
RP140	X	X	X	X
RP167	100k	100k	100k	100k
RP170	10R	10R	10R	10R
TP002/003	-	-	X	X
TP009	BULP107H	BULP107H	BULP107H	BULP107H
TP139	X	X	X	X
TP140	X	X	X	X
TP162	-	-	X	X

X Inserted
– Not inserted

★ (Board comp.)	RP095	RP107	CP139	CP140	RP095	RP108	JP011	JP013	LP020	RP095	RP096	RP098	TP009
MI3.10101 100Hz/Dalby	X	X	X	100u	X	X	X	–	–	2u2	100	X	X	X	X
MI3.10002 100u	–	–	–	100u	X	–	X	–	–	2u2	100	–	–	–	–
MI3.10003 100Hz/Dalby	X	X	X	100u	X	X	X	–	–	2u2	100	X	X	X	X
MI3.10004 100Hz/MTS Pal/Pan.	–	–	–	–	X	–	–	X	–	2u2	100	–	–	–	–
MI3.10012 100u	–	–	–	100u	–	–	–	X	–	2u2	100	–	–	–	–
MI3.10111 100Hz/Stereo	X	X	X	100u	–	X	–	X	–	2u2	100	X	X	X	X

X Inserted
– Not inserted

Part of board connected to mains supply.
Partie du chassis reliée au secteur.
Primärseite des Netzteils.
Parte dello chassis collegata alla rete.
Parte del chassis conectada a la red.

⚠ Use isolating mains transformer
Utilisez un transformateur isolateur du secteur
Einen Trenntrafo verwenden
Utilizzar un transformador aislador de red
Utilizzare un transformatore per isolarvi dalla rete

Note :
Power Supply primary circuit measurements.
- Use only (GND1) connection point.

Attention :
Mesure dans le bloc alimentation
- Utiliser la masse du bloc alimentation (GND1).

Achtung :
Bei Messungen im Primärnetzteil
- Primärnetzteilmasse verwenden (GND1).

Attenzione :
misure nell'alimentatore primario
- usare massa alimentazione primario (GND1).

Cuidado :
Medida en el bloque de alimentacion
- Utilizar la masa del bloque de alimentacion (GND1).

⚠ Safety Part
When repairing, use original part only
Pièce de sécurité
N'utilisez que les pièces d'origine
Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden
Componenti di sicurezza
durante la ripazione usare componenti originali
Pieza de seguridad
Utilice solo piezas originales

□	Deflection - Basic Portfolio
	100Hz
	DP 10108.00
	10 34 00 00
RL002	
CL000	470p/1KV
CL004	2n2/250VAC
CL005	–
CL006	–
CL007	2n2/250VAC
CL008	56k
CL140	330k
DL000/004	–
DL001	BYT03P-1000
DL002	BYT08P-800
DL004/005	BYT01P-200
DL009	BZX55B22
DL057	–
DL147/148	LL4148
JL000	–
LL001	10 48 07 00
LL002	–
LL003	10 35 04 40
LL045	82n
RP010	PTC/40R
RL004	1k
RL010	47k7
RL014	4R02
RL015	10k
RL016/17	4R02
RL018	4R02
RL019	10k
RL021	47k
RL154/157	75R
RL156/157	75R
RL140	150R
RL147	4k7
RL148	1k
TL000	10N4007
TL001	BUF169

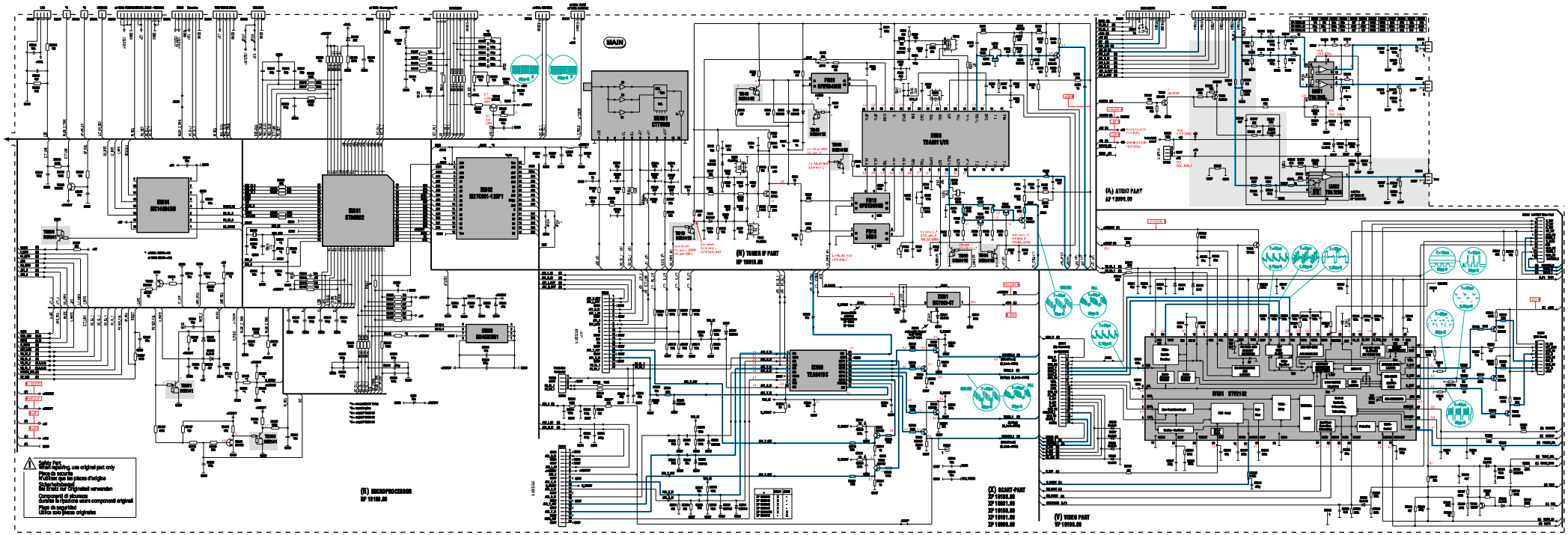
★	Deflection - Picture Tube related Portfolio					
	CT 10101.04	CT 10102.07	CT 10102.07	CT 10111.04	CT 10112.04	CT 10101.04
	10 35 20 00	10 35 10 00	10 02 20 10	10 44 40 10	10 47 04 00	10 02 20 00
	100Hz	100Hz	100Hz-50Hz	100Hz	100Hz	100Hz-50Hz
	20-22"/90° 4/3	20"/90° 4/3	20"/90° 4/3	20"/90° 16/9	20"/90° 16/9	20"/90° 16/9
CP002	680p	680p	680p	2n2	2n2	2n2
CP003	10k	10k	10k	10k	10k	10k
CP010	15	15	15	1N5	1N5	1N5
CP015	15	15	15	1N82	1N82	1N82
CP020	100R	270R	270R	–	–	–
CP025	39R	49R	49R	100R	100R	100R
CL000	4n64	7n32	7n32	4n64	4n64	4n64
CL001	–	–	–	–	–	–
CL002	–	–	–	–	–	–
CL003	33n7	47n	47n	33n7	33n7	33n7
CL005	330R	910R	910R	330R	330R	330R
CL006	–	330R	330R	–	–	–
CL00403	2n2	2n2	2n2	2n2	2n2	2n2
CL007	270R	270R	270R	270R	270R	270R
CL008	68n4	68n4	68n4	68n4	68n4	68n4
CL007	33n1	27n4	68n2	47n9	47n9	68n2
CL009	–	2n2	2n2	–	–	–
CL00403	2n2	2n2	2n2	2n2	2n2	2n2
CL001	68k	68k	68k	68k	68k	68k
CL004	–	330R	330R	–	–	–
CL002	47n	47n	47n	47n	47n	47n
CL100	33n2	–	–	33n2	33n2	33n2
CL111	6n8	6n8	6n8	6n8	6n8	6n8
CL114	–	–	–	–	–	–
CL115	–	–	–	–	–	–
RP000/CL						

Note : the last two numbers of the CT xxxx part list name indicates the system voltage.
e.g. CT 19005 31 Usys 131V →
Nota: Los dos últimos números de la denominación CT xxxx, indica la tensión Usys
e.g. CT 19005 31 Usys 131V →

X Inserted
– Not inserted

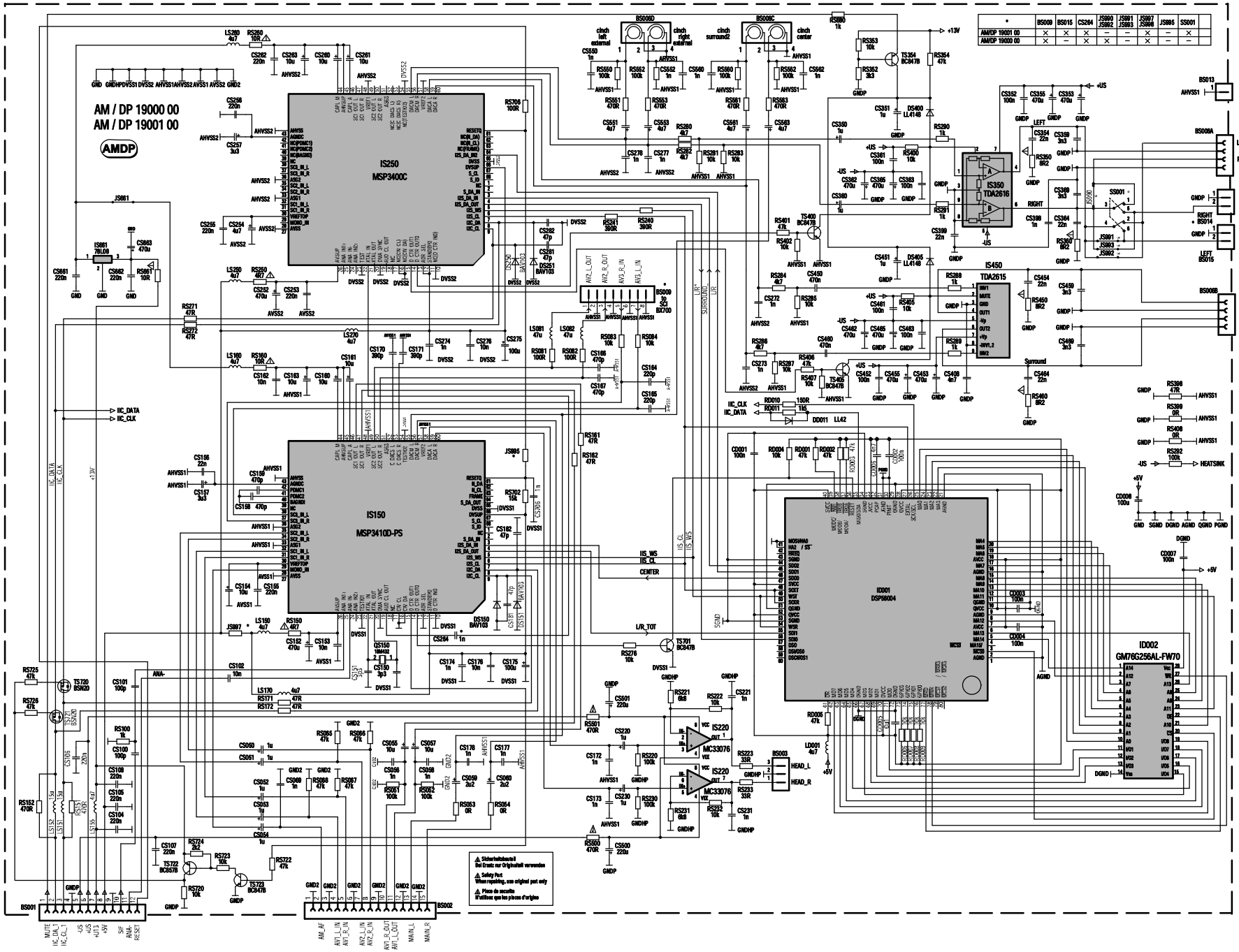
ICC19 100 Hz
First issue 09 / 97

COMPLETE PCB DIAGRAM - SCHEMA PLATINE PRINCIPALE EQUIPEE - SCHALTUNG LEITERPLATTE KPL - SCHEMA PIASTRA COMPLETA - ESQUEMA PLATINA EQUIPADA



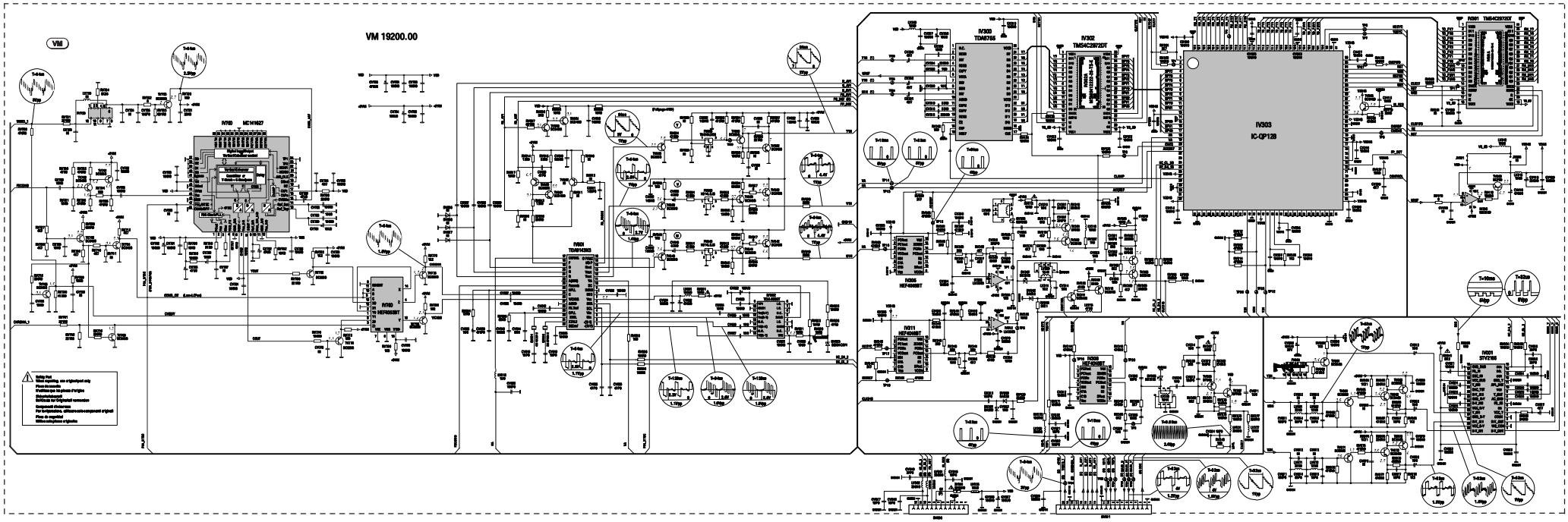
ICC19 60 Hz
First issue 09 / 97

AUDIO SIGNAL/DOLBY MODULE - MODULE AUDIO/DOLBY - TON SIGNAL/DOLBY BAUSTEIN - MODULO AUDIO/DOLBY - MÓDULO AUDIO/DOLBY



•	BS009	BS015	CS264	JS990 JS992	JS991 JS993	JS997 JS998	JS995	SS001
AM/DP 19001 00	×	×	×	–	–	×	–	×
AM/DP 19000 00	×	–	×	×	–	×	–	–

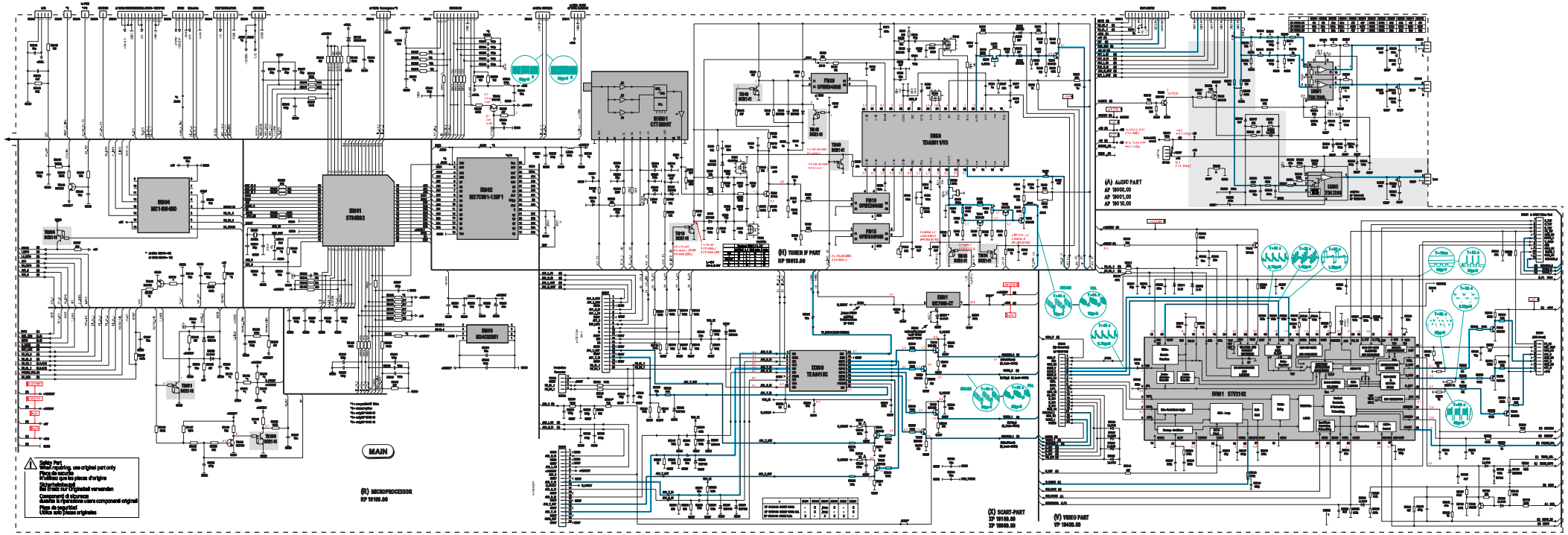
VIDEO MODULE - MODULE VIDEO - VIDEO BAUSTEIN - MODULO VIDEO - MÓDULO VIDEO



Updated 11 / 98

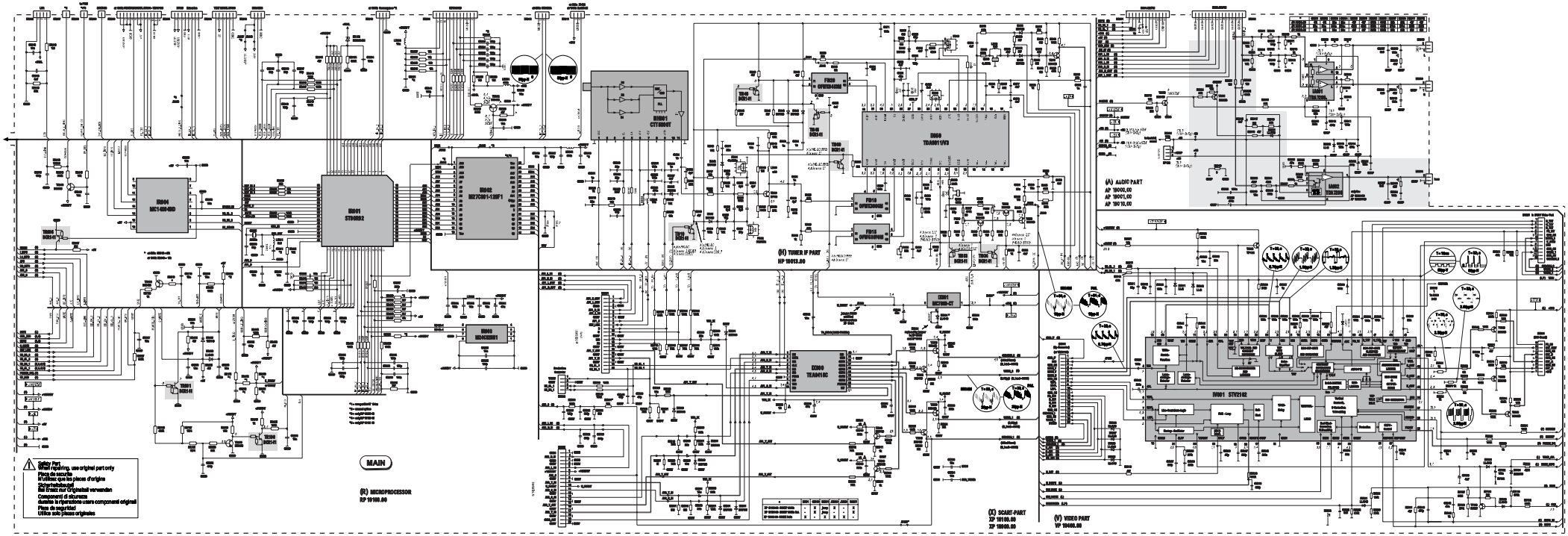
ICC19 100 Hz
First issue 09 / 97

MAIN SCHEMATIC DIAGRAM - SCHEMA PLATINE PRINCIPALE - SCHALTUNG HAUPTPLATINE - SCHEMA PIASTRA PRINCIPALE - ESQUEMA PLATINA PRINCIPAL



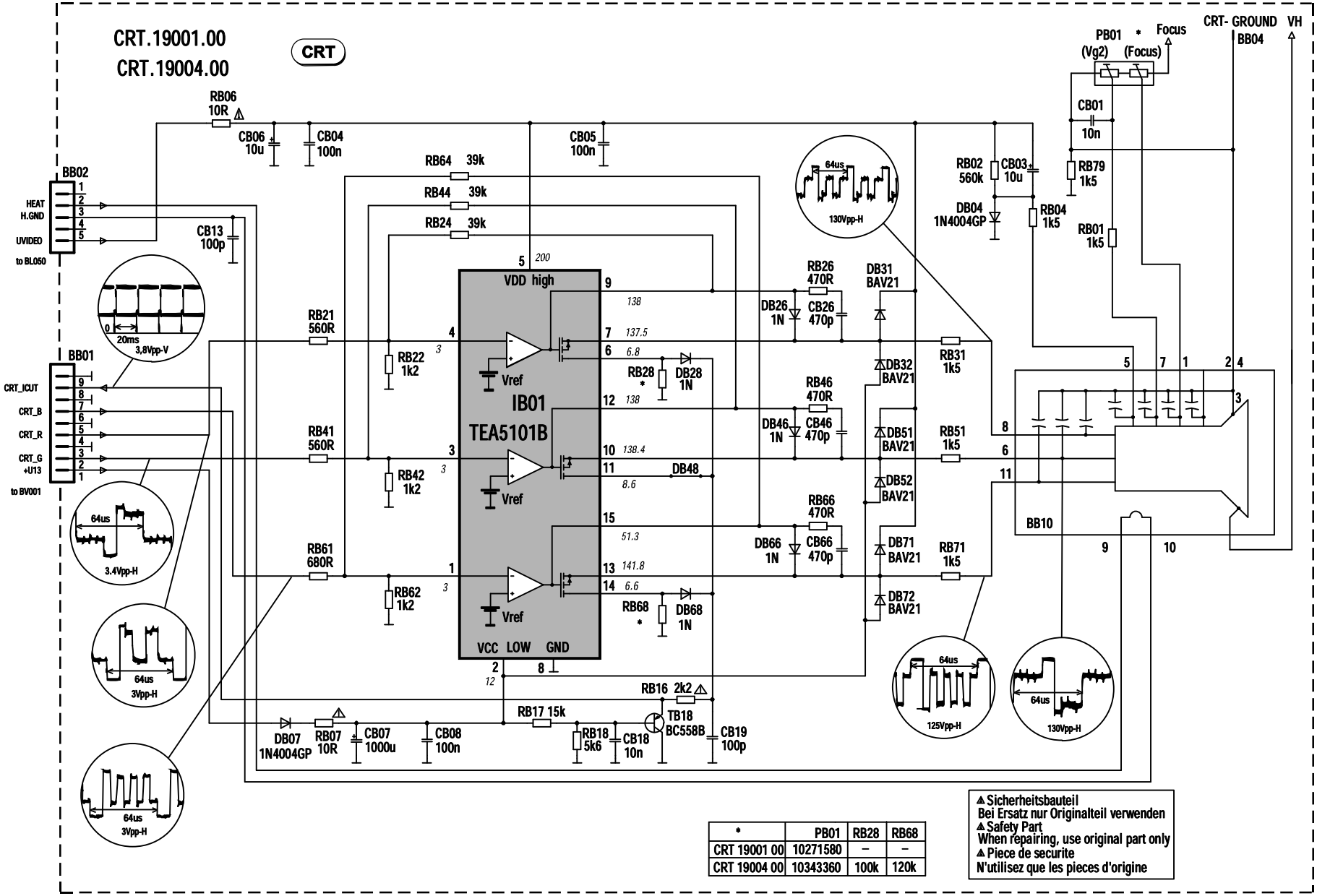
RP C19
First Issue 07 / 98

MAIN SCHEMATIC DIAGRAM - SCHEMA PLATINE PRINCIPALE - SCHALTUNG HAUPTPLATINE - SCHEMA PIASTRA PRINCIPALE - ESQUEMA PLATINA PRINCIPAL



RP C19
First Issue 07 / 98

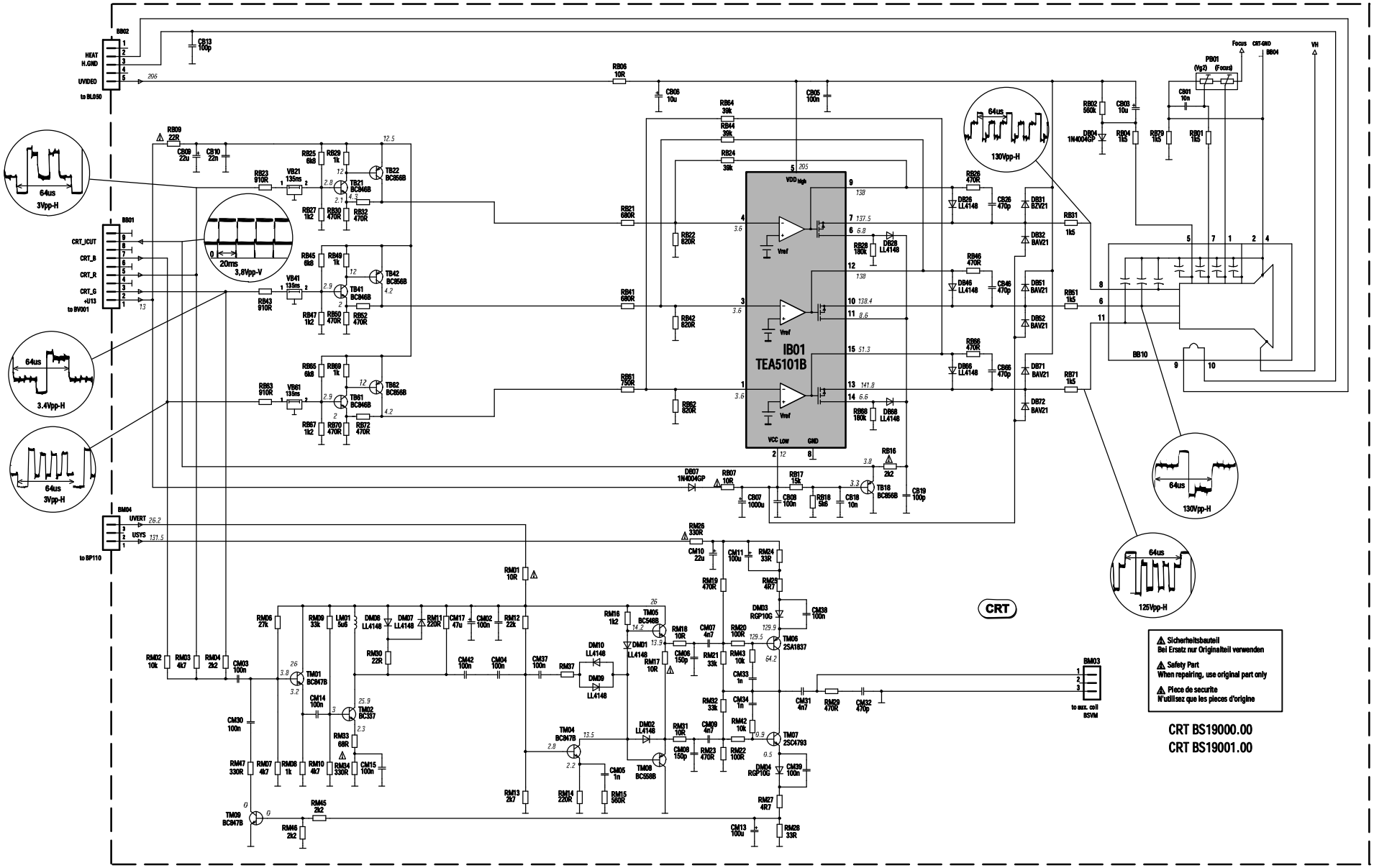
VIDEO AMPLIFIER BOARD - PLATINE AMPLIFICATEURS VIDEO - VIDEOVERSTÄRKERPLATTE
PIASTRA AMPLIFICATORE VIDEO - PLATINA AMPLIFICADOR VIDEO



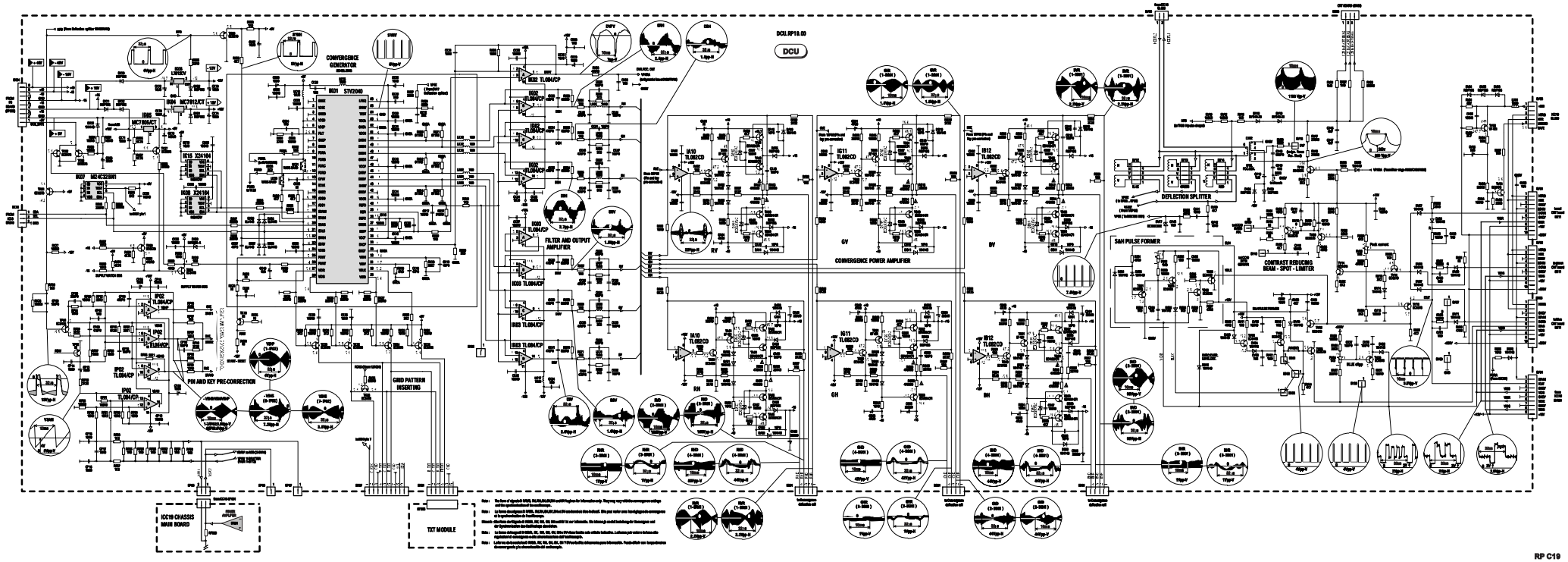
*	PB01	RB28	RB68
CRT 19001 00	10271580	–	–
CRT 19004 00	10343360	100k	120k

⚠ Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden
⚠ Safety Part
When repairing, use original part only
⚠ Piece de securite
N'utilisez que les pieces d'origine

VIDEO AMPLIFIER BOARD - PLATINE AMPLIFICATEURS VIDEO - VIDEOVERSTÄRKERPLATTE - PIASTRA AMPLIFICATORE VIDEO - PLATINA AMPLIFICADOR VIDEO

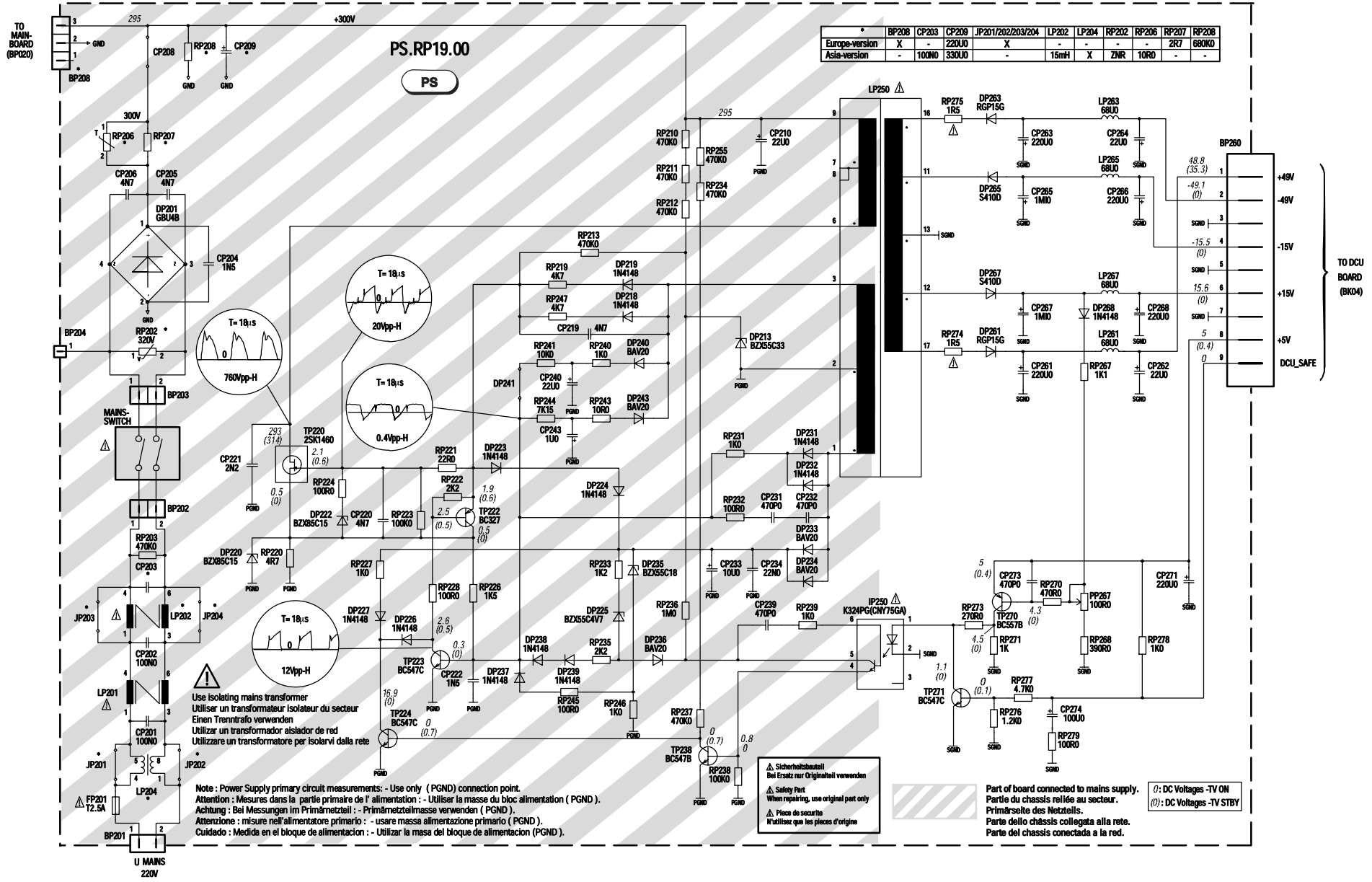


DIGITAL CONVERGENCE UNIT - PLATINE DE CONVERGENCES NUMERIQUES - DIGITALE KONVERGENZ EINHEIT - UNITÀ DI CONVERGENZA DIGITALE - UNIDAD DE CONVERGENCIA DIGITAL



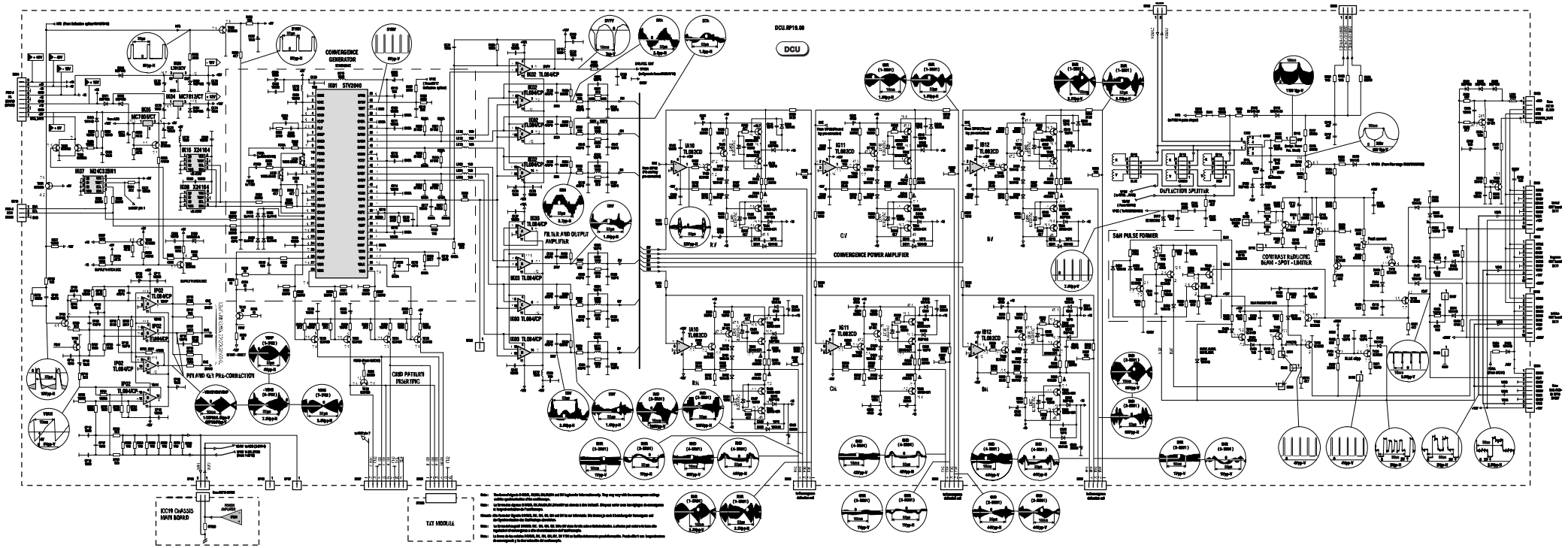
RP C19

DIGITAL CONVERGENCE UNIT POWER SUPPLY - ALIMENTATION PLATINE DE CONVERGENCES NUMERIQUES - DIGITAL CONVERGENCE UNIT NETZTEIL - ALIMENTAZIONE CONVERGENZA DIGITALE - ALIMENTACIÓN DE LA UNIDAD DE CONVERGENCIA DIGITAL



	BP208	CP203	CP209	JP201/202/203/204	LP202	LP204	RP202	RP206	RP207	RP208
Europe-version	X	-	220U0	X	-	-	-	-	2R7	680K0
Asia-version	-	100N0	330U0	-	15mH	X	ZNR	10R0	-	-

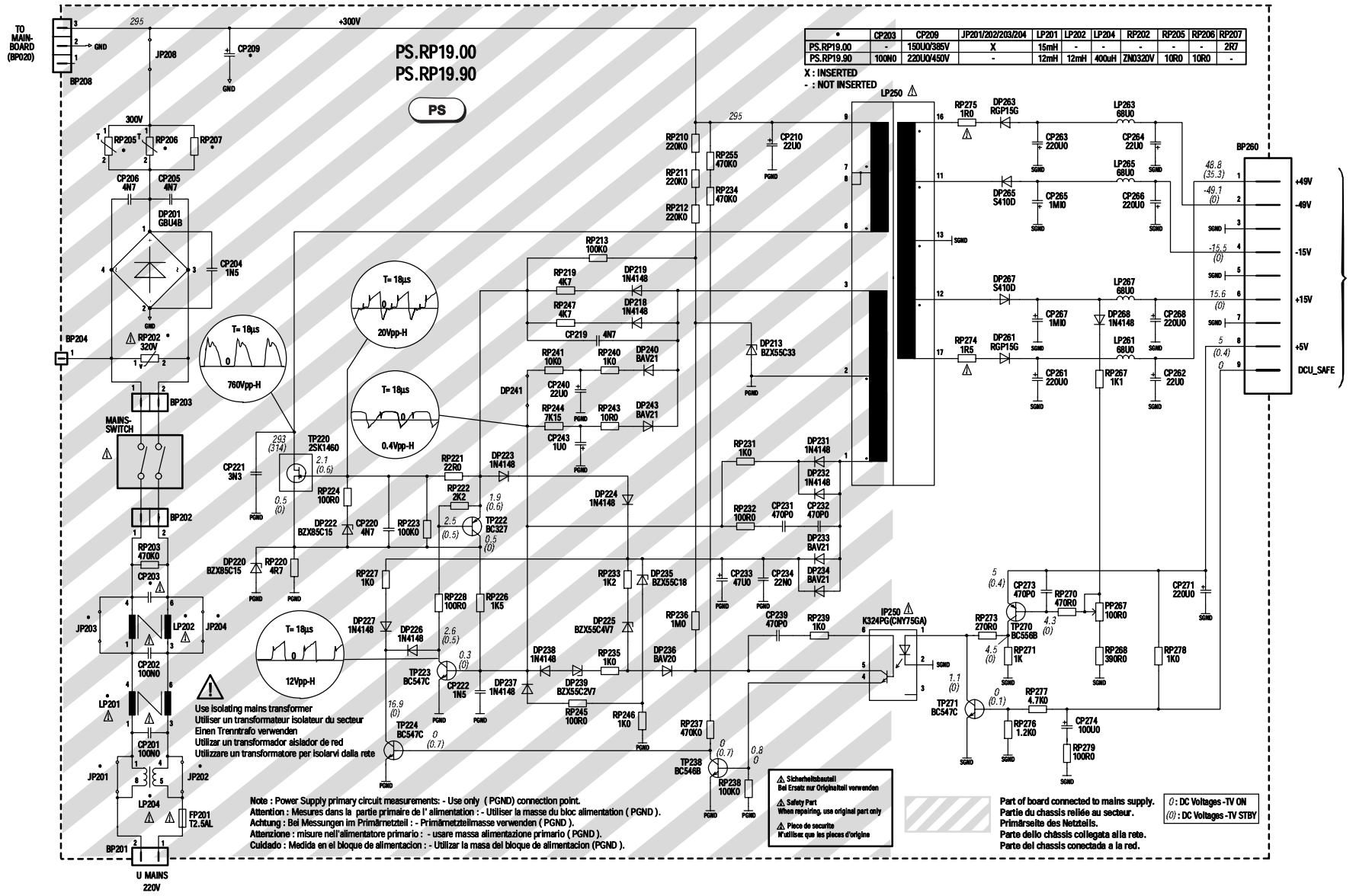
DIGITAL CONVERGENCE UNIT - PLATINE DE CONVERGENCES NUMERIQUES - DIGITALE KONVERGENZ EINHEIT - UNITÀ DI CONVERGENZA DIGITALE - UNIDAD DE CONVERGENCIA DIGITAL



Updated 07 / 99

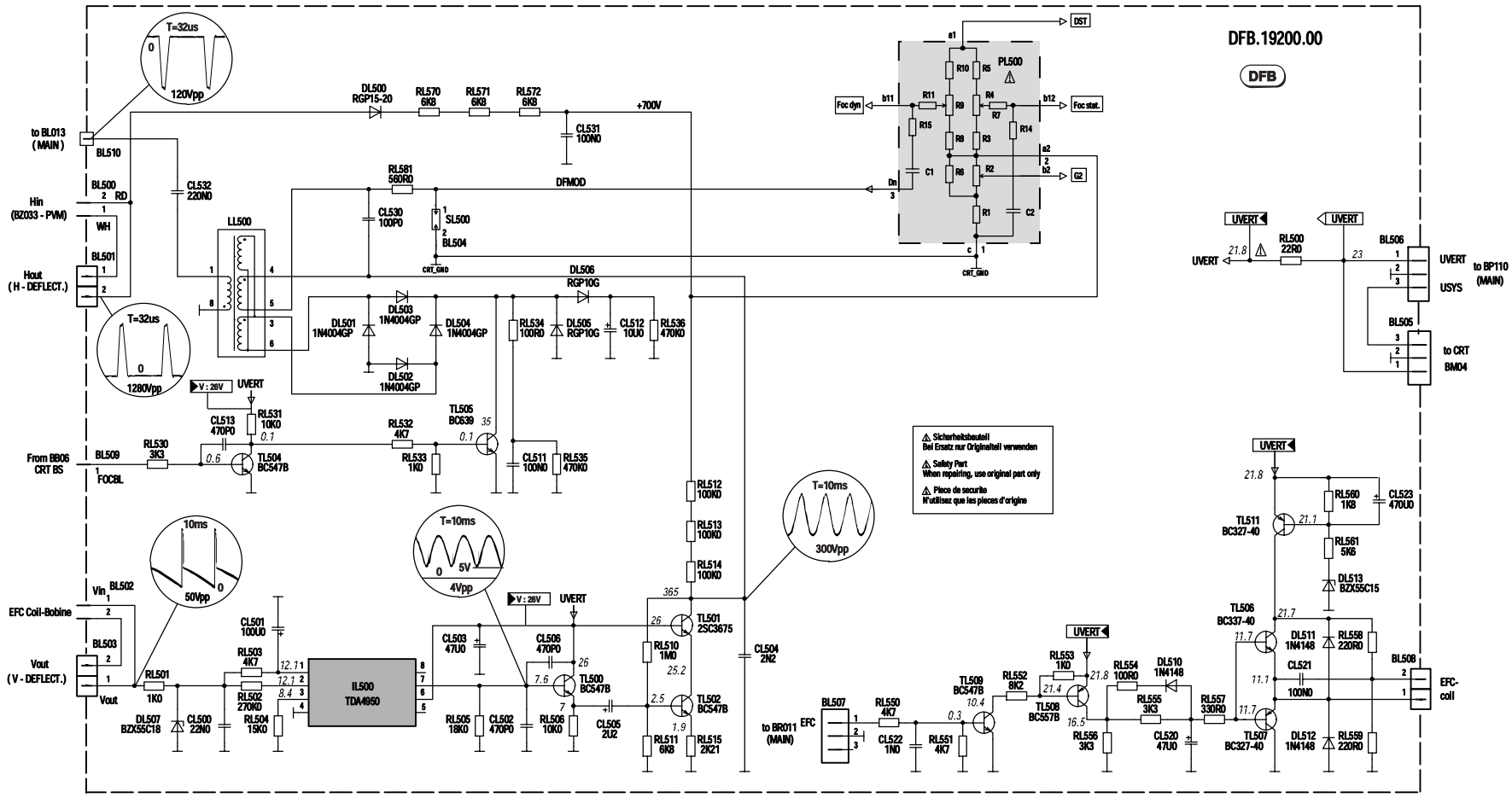
RP C19
First Issue 07 / 98

DIGITAL CONVERGENCE UNIT POWER SUPPLY - ALIMENTATION PLATINE DE CONVERGENCES NUMERIQUES - DIGITAL CONVERGENCE UNIT NETZTEIL - ALIMENTAZIONE CONVERGENZA DIGITALE - ALIMENTACIÓN DE LA UNIDAD DE CONVERGENCIA DIGITAL



	CP203	CP209	JP201/202/203/204	LP201	LP202	LP204	RP202	RP205	RP206	RP207
PS.RP19.00	-	150U0/385V	X	15mH	-	-	-	-	-	2R7
PS.RP19.90	100N0	220U0/450V	-	12mH	12mH	400uH	ZN0320V	10R0	10R0	-

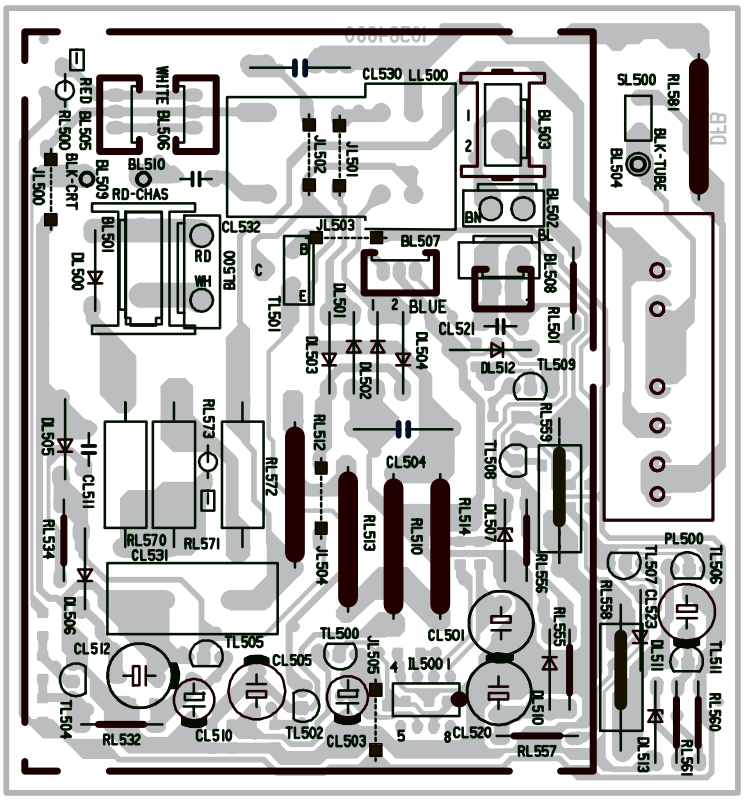
DYNAMIC FOCUS MODULE - MODULE FOCUS DYNAMIQUE - DYNAMIKFOKUS BAUSTEIN - MODULO FUOCO DINAMICO - MÓDULO FOCO DINÁMICO



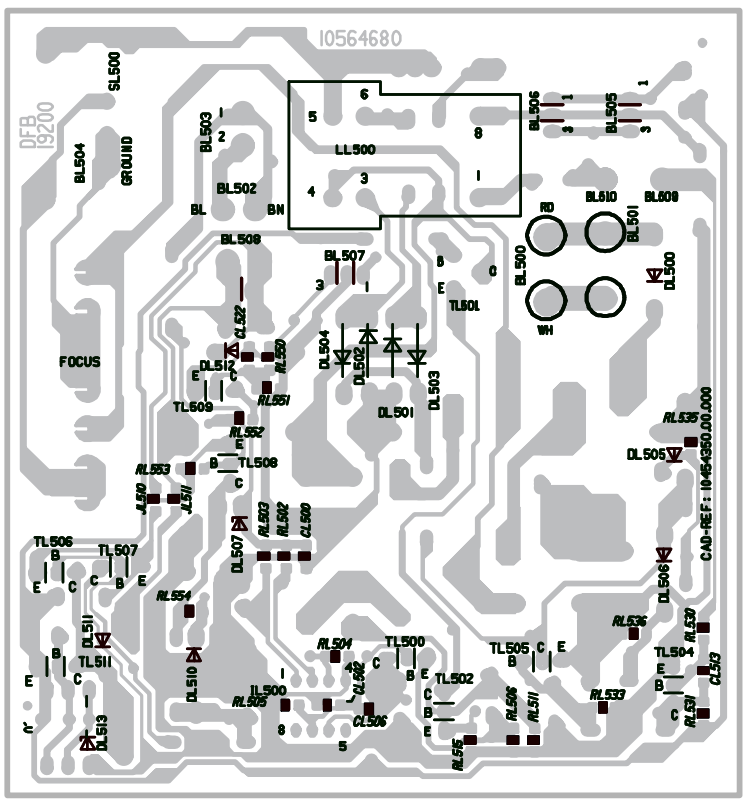
DFB 19200

DYNAMIC FOCUS MODULE - MODULE FOCUS DYNAMIQUE - DYNAMIKFOKUS BAUSTEIN - MODULO FUOCO DINAMICO - MÓDULO FOCO DINÁMICO

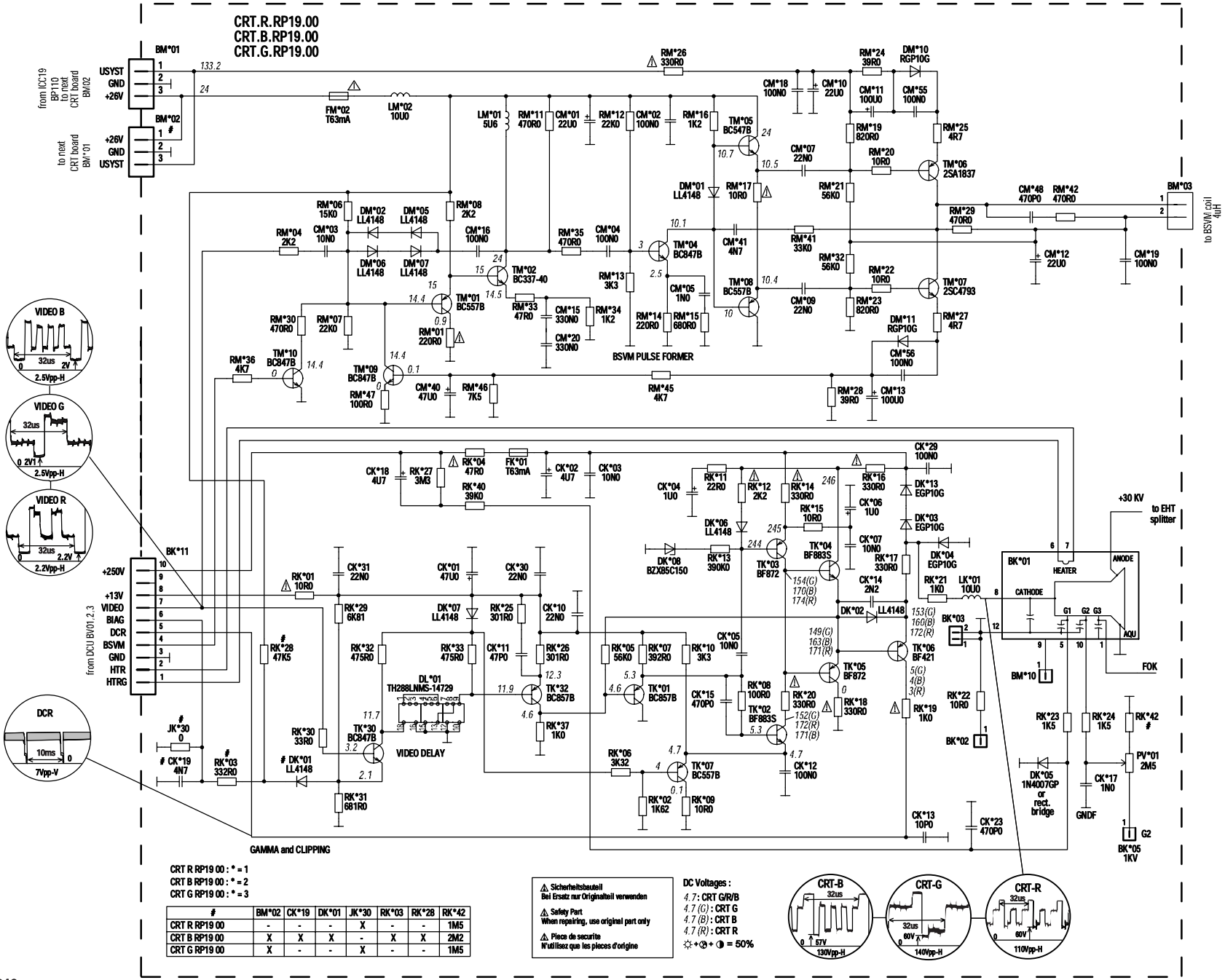
COMPONENT SIDE - CÖTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES



SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

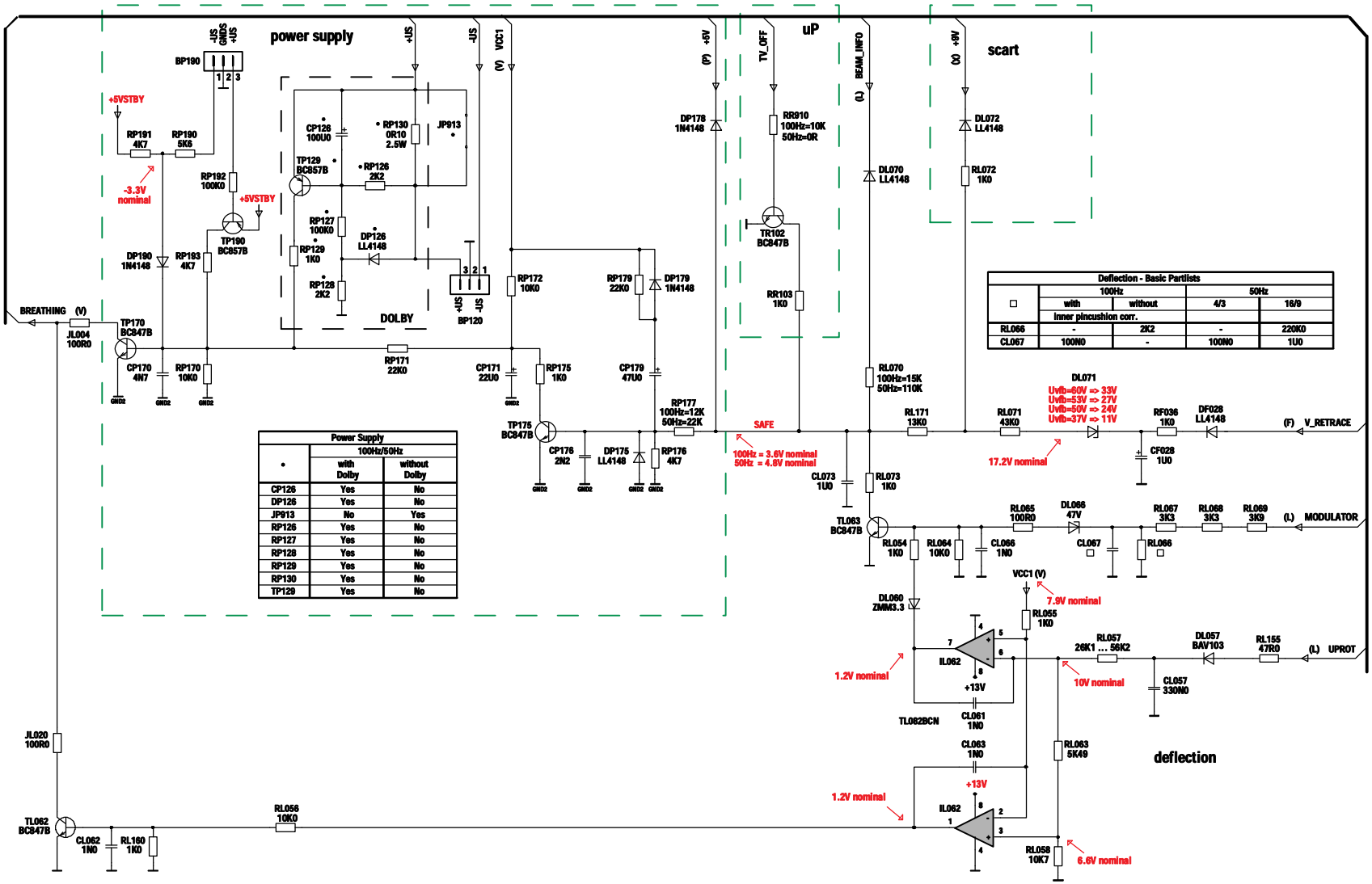


VIDEO AMPLIFIER BOARD - PLATINE AMPLIFICATEURS VIDEO - VIDEOVERSTÄRKERPLATTE - PIASTRA AMPLIFICATORE VIDEO - PLATINA AMPLIFICADOR VIDEO

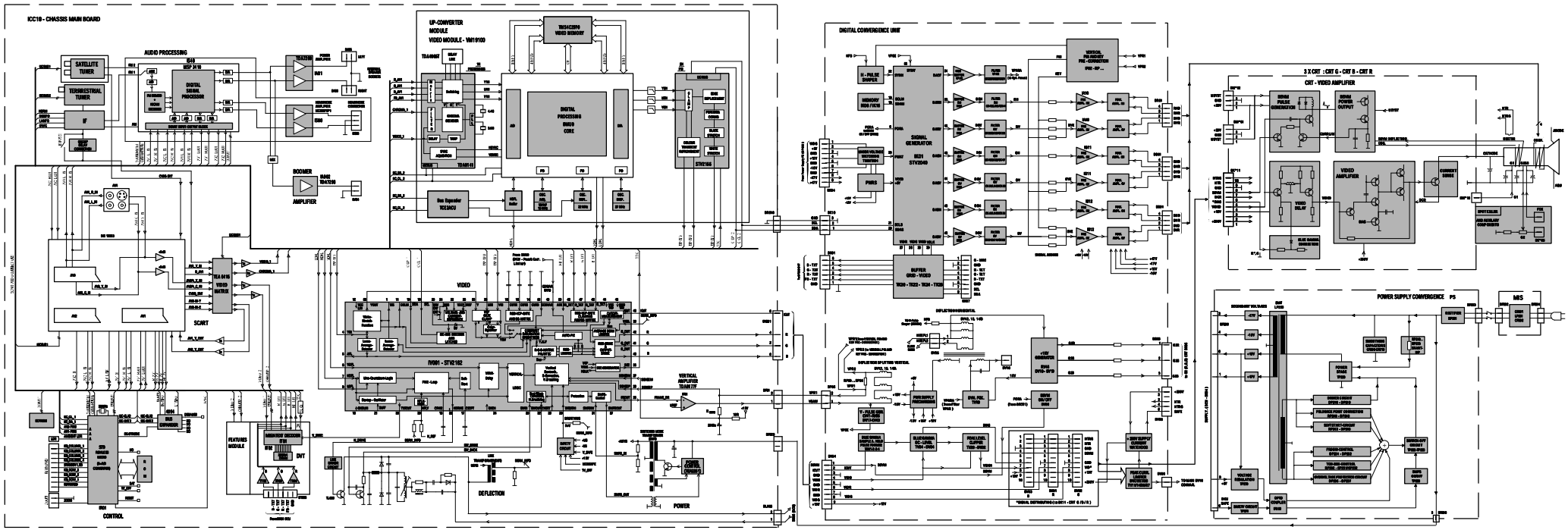


#	BM*02	CK*19	DK*01	JK*30	RK*03	RK*28	RK*42
CRT R RP19 00	-	-	-	X	-	-	1M5
CRT B RP19 00	X	X	X	-	X	X	2M2
CRT G RP19 00	X	-	-	X	-	-	1M5

SAFETY CIRCUIT - CIRCUITS DE SECURITES - SCHUTZSCHALTUNG - CIRCUITO DI PROTEZIONE - CIRCUITO DE SEGURIDADES



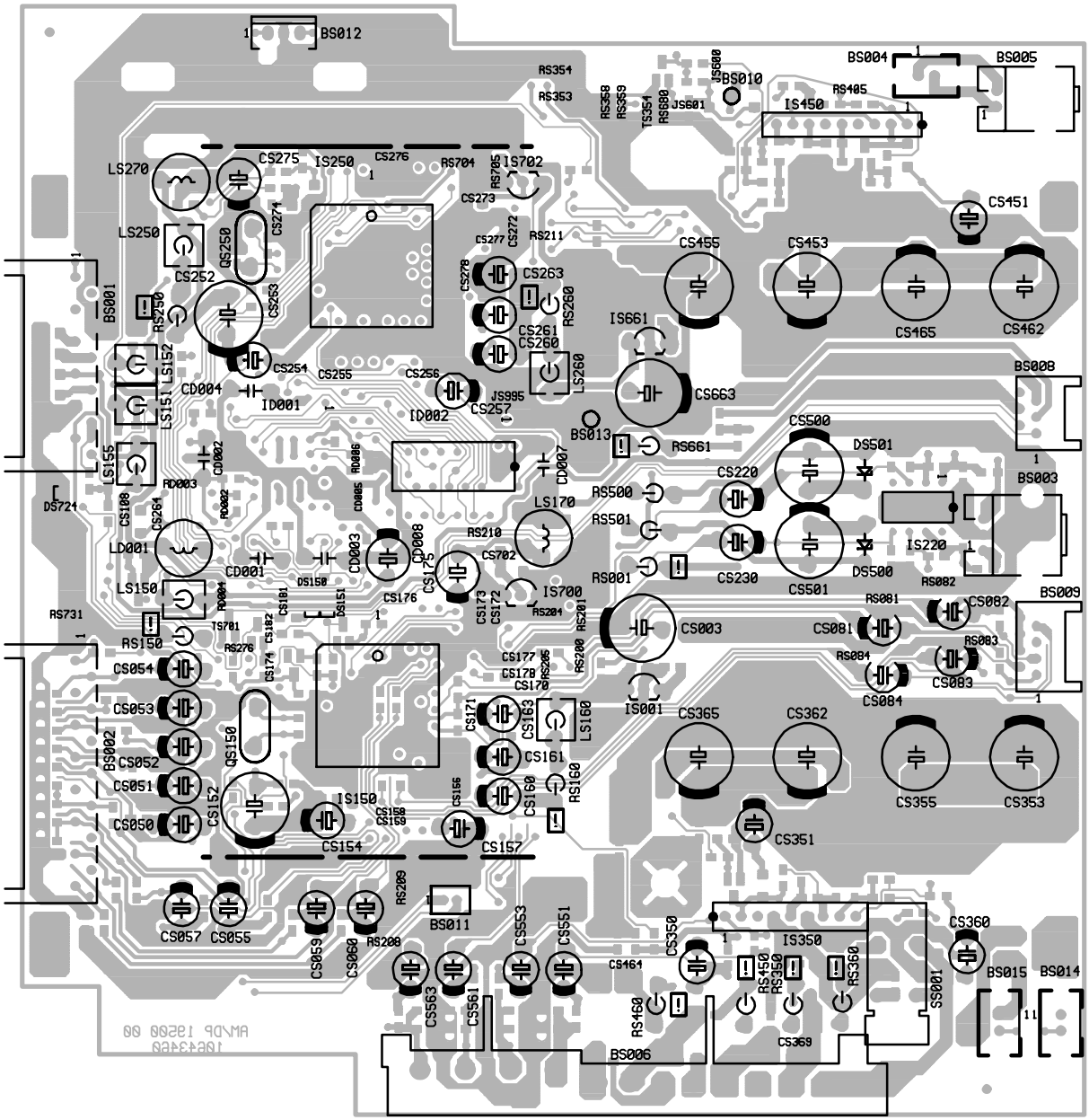
BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCHI - ESQUEMA DE BLOQUES



RP C19
First Issue 07 / 98

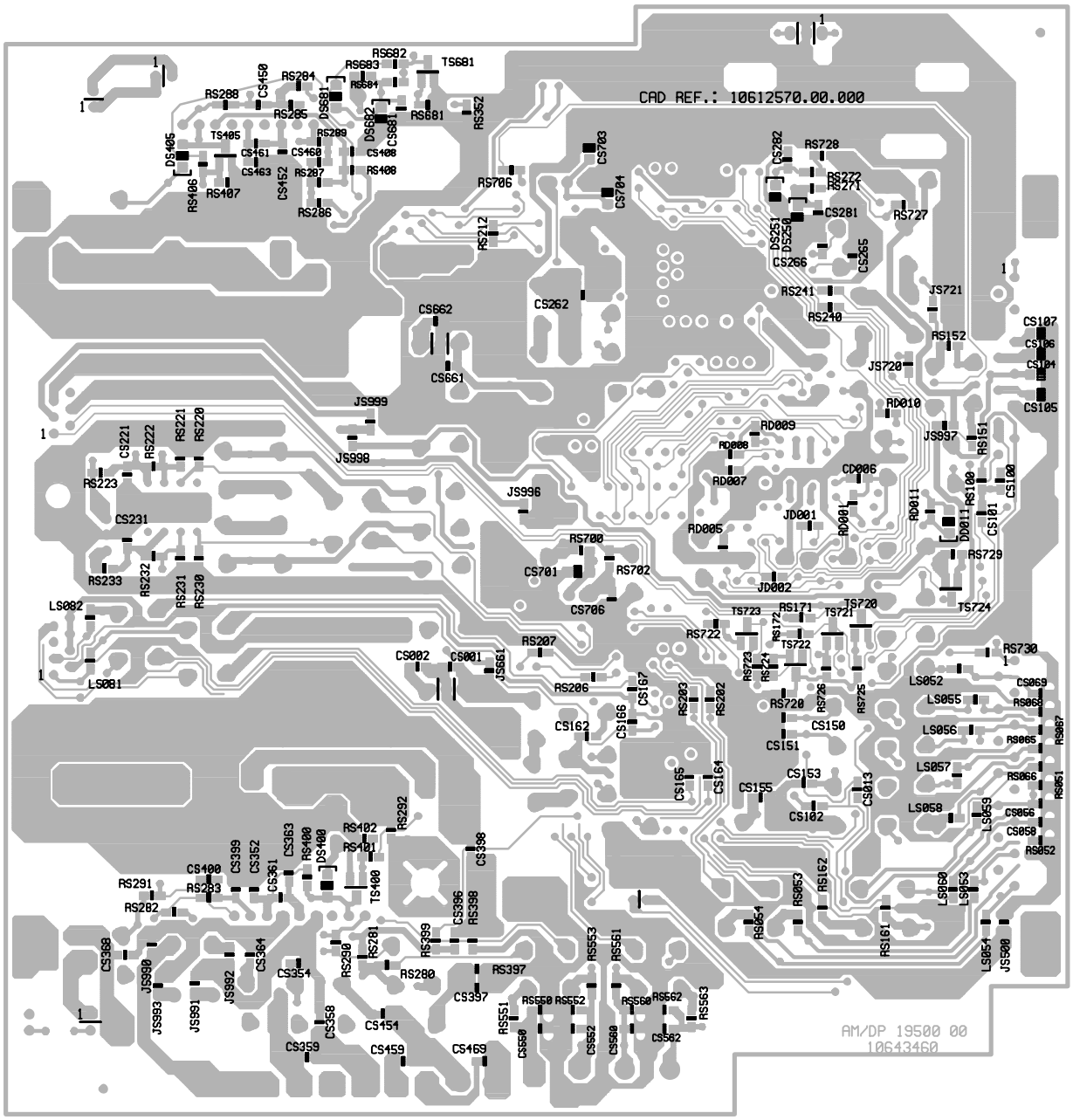
AM / DP 19500

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES



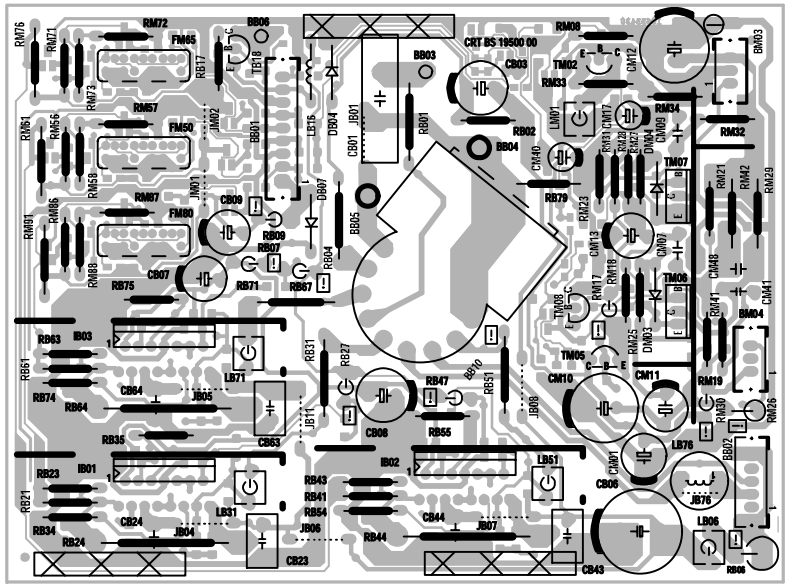
AM / DP 19500

SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

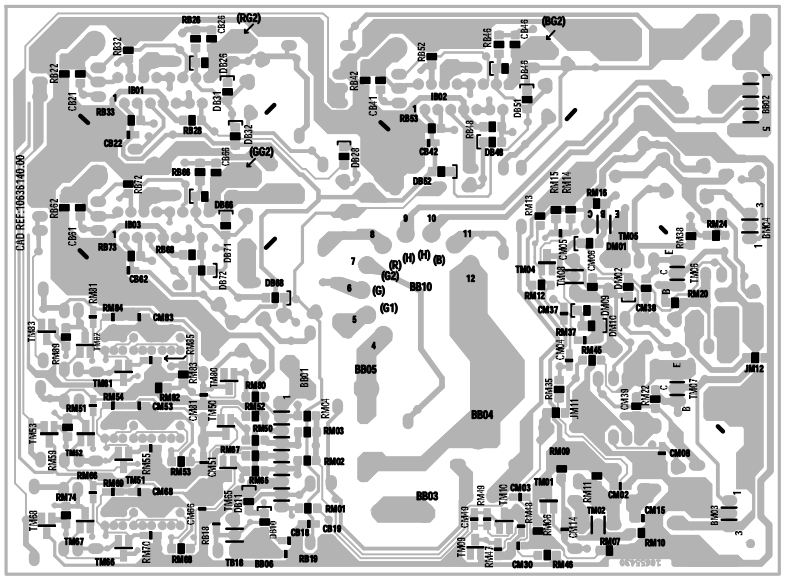


CRT BS 19500

COMPONENT SIDE - CÔTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

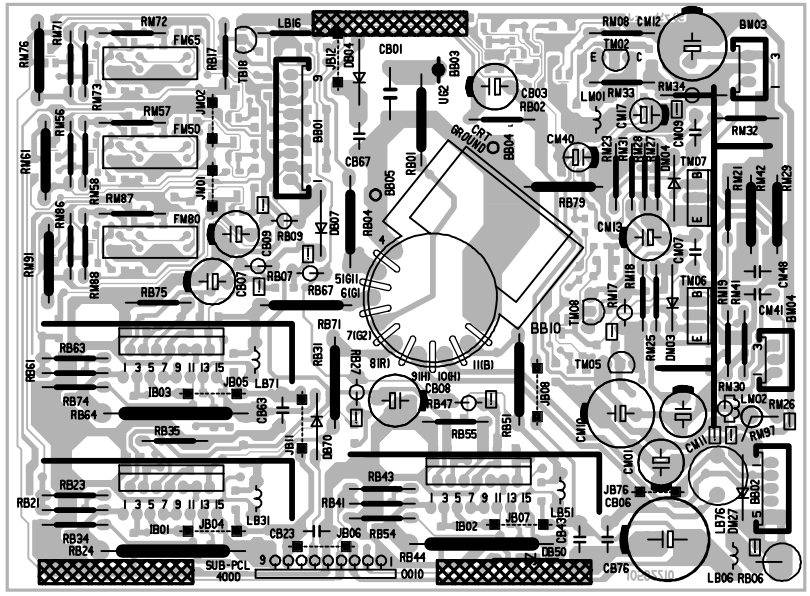


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

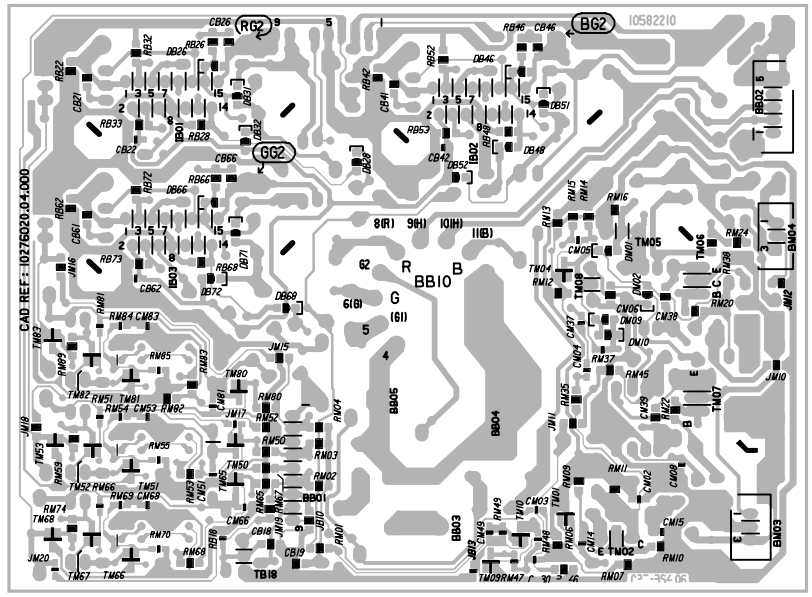


CRT BS 19400

COMPONENT SIDE - CÔTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

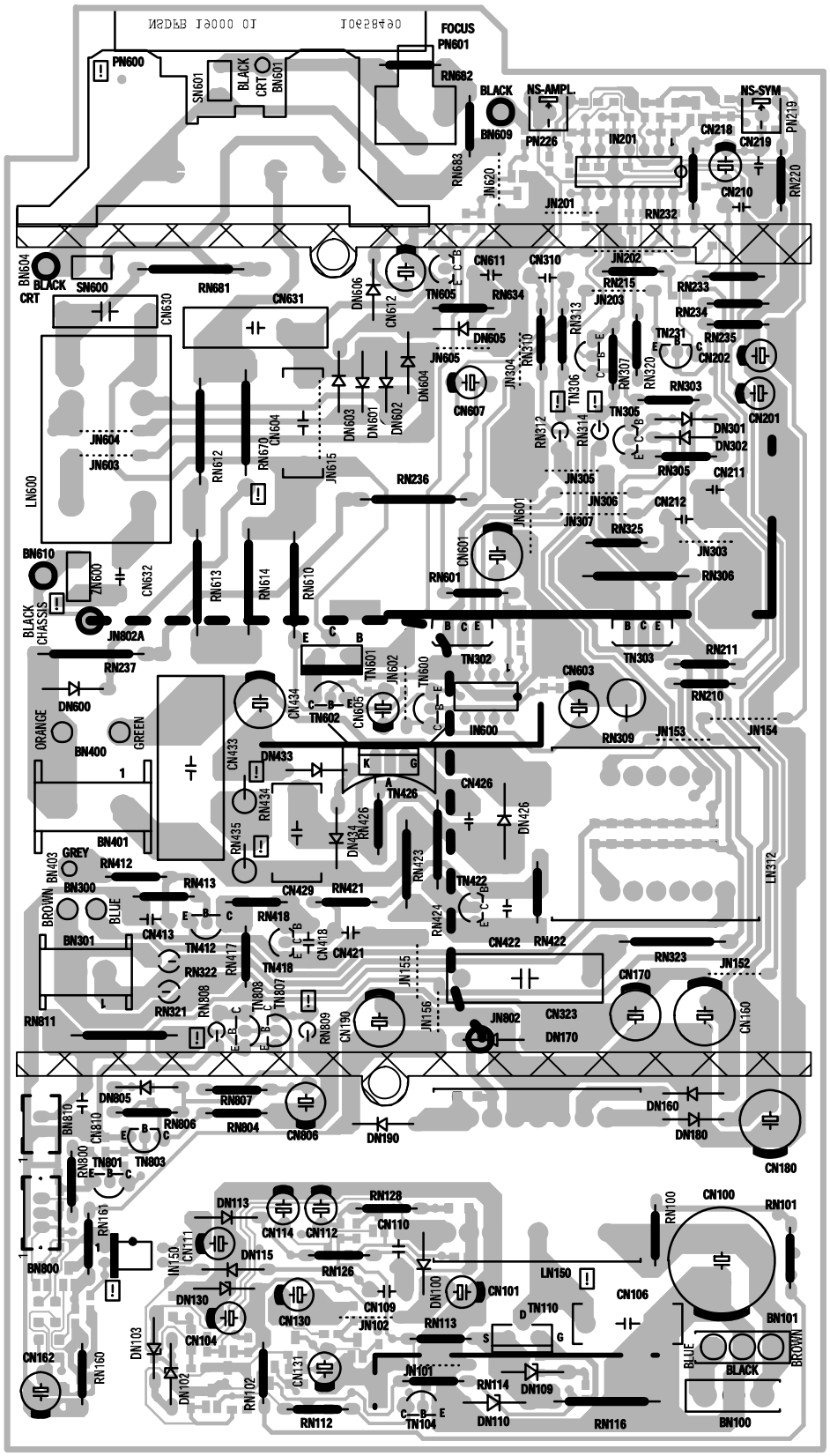


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS



NSDFB 19500

COMPONENT SIDE - CÖTE COMPOSANTS - BESTÜCKUNGSSEITE -
LATO COMPONENTI - LADO COMPONENTES

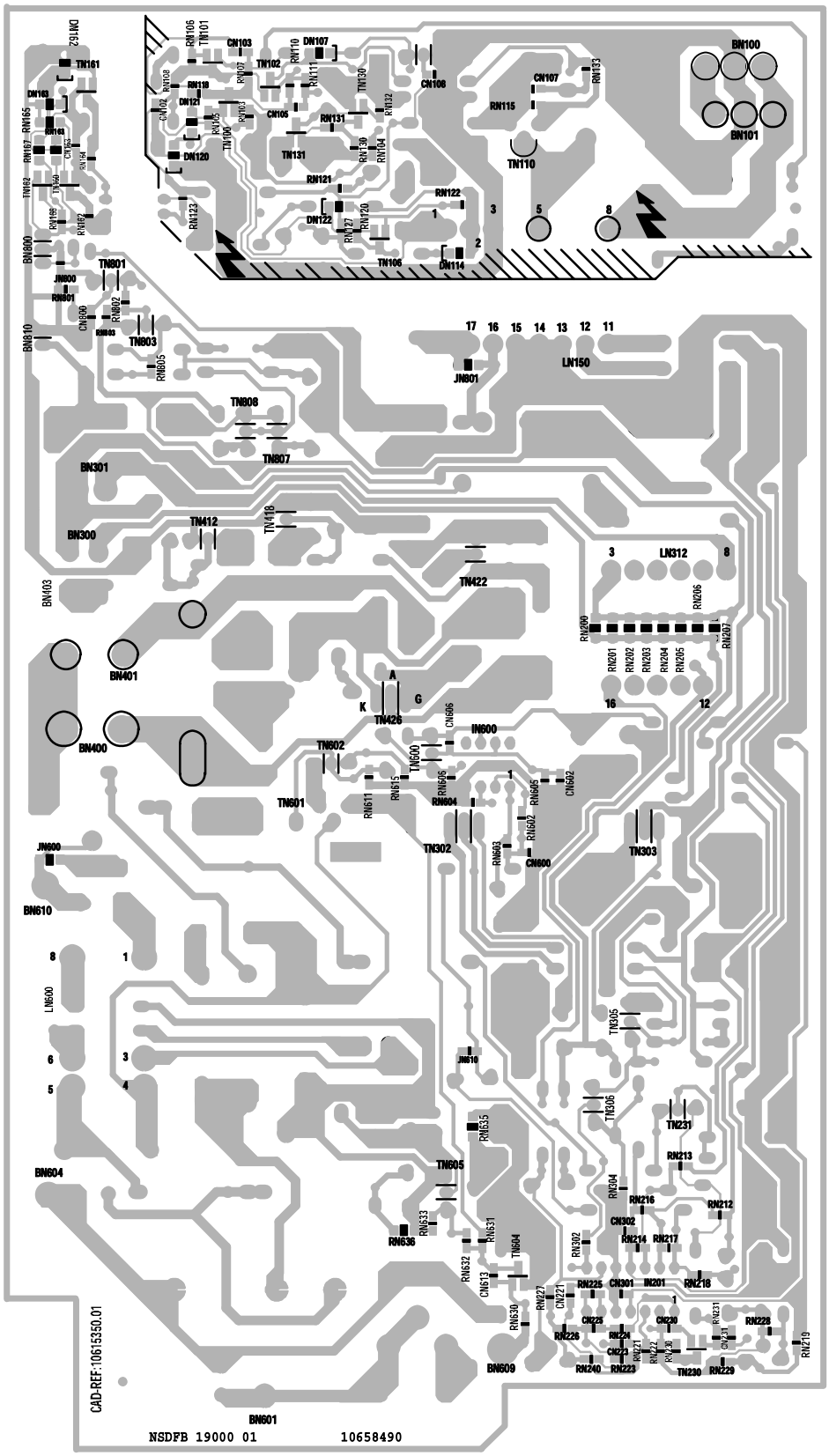


ICC19 100 Hz
First issue 09 / 97

Updated 11 / 99

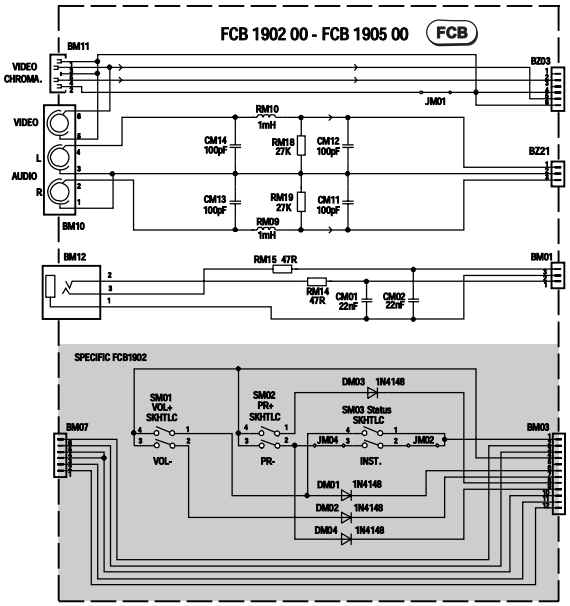
NSDFB 19500

SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

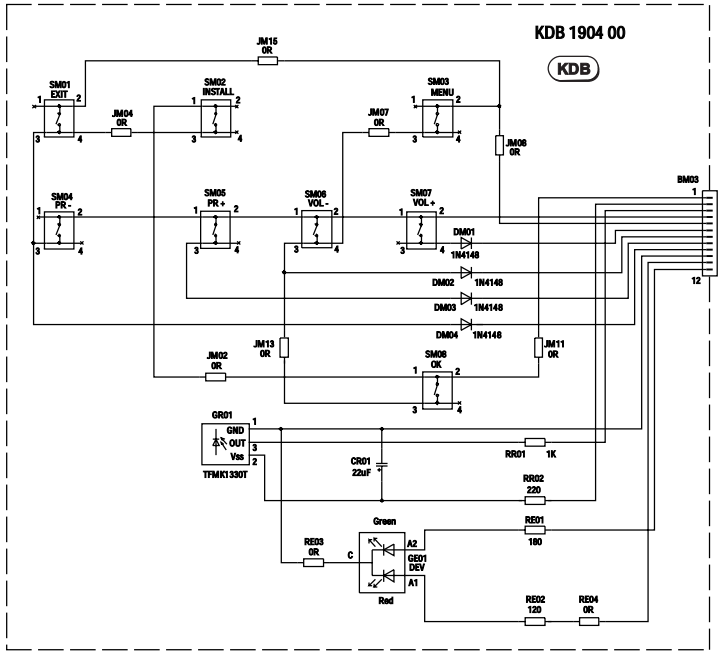


FRONT CONNECTOR BOARD - PRISES EN FACADE ET INTERCONNEXION DU CLAVIER - FRONT ANSCHLUSSPLATTE - PIASTRA CONNESSIONE FRONTALE - PLÁTINA MANDOS FRONTAL

FCB1905

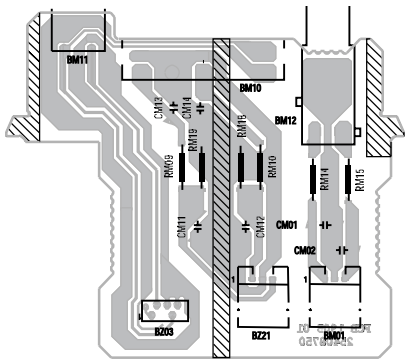


KDB1904

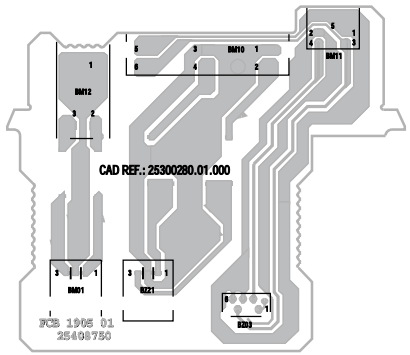


FCB1905

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI LADO COMPONENTES

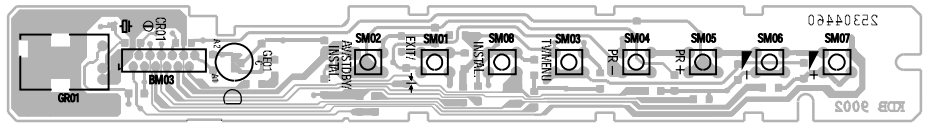


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

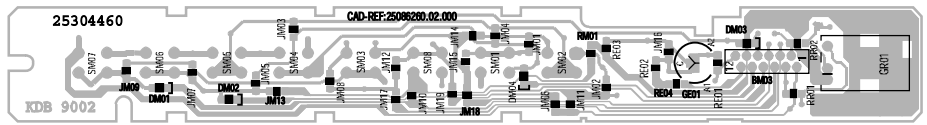


KDB1904

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI LADO COMPONENTES



SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

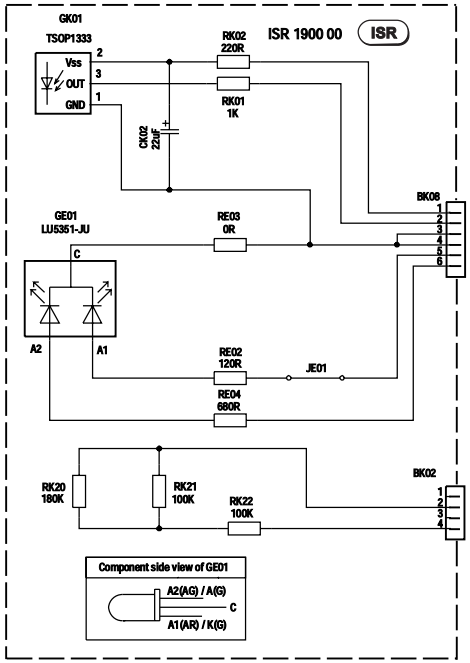


ICC19 100 Hz
First issue 09 / 97

Updated 11 / 99

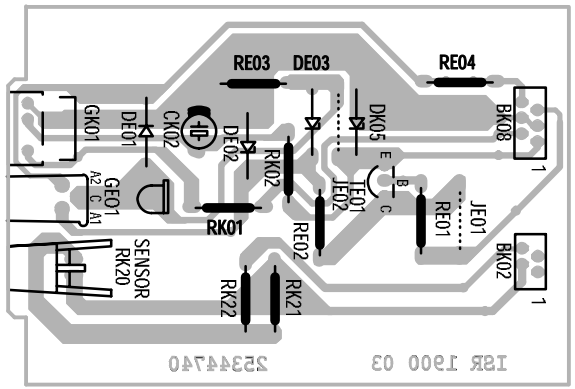
IR RECEIVER - PLATINE RECEPTEUR INFRA-ROUGE - IR EMPFÄNGER - LPTL. PIASTRA RICEVITORE IR - PLATINA RECEPTOR IR

ISR19100



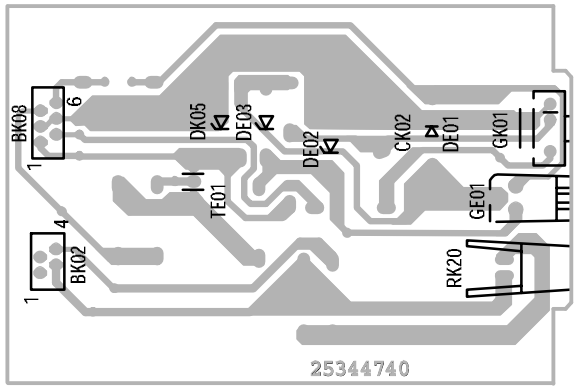
ISR19100

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES

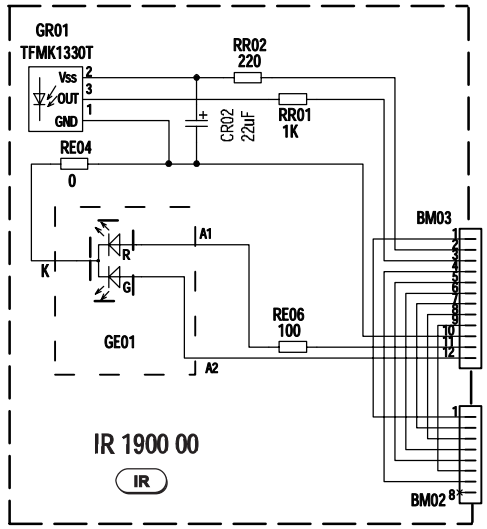


ISR19100

SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE
LATO SALDATURE - LADO SOLDADURAS

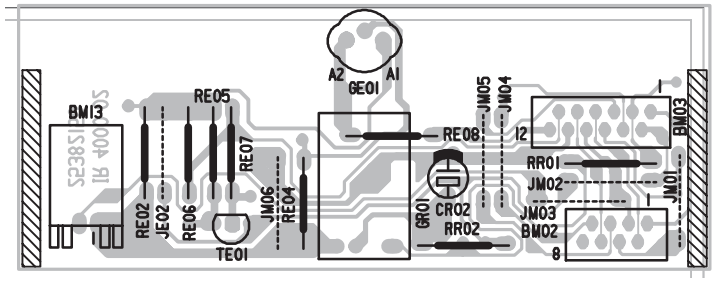


IR1900



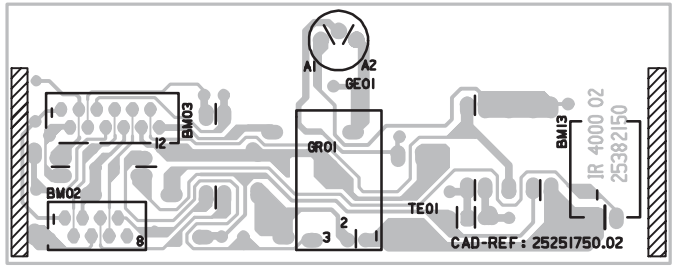
IR1900

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES



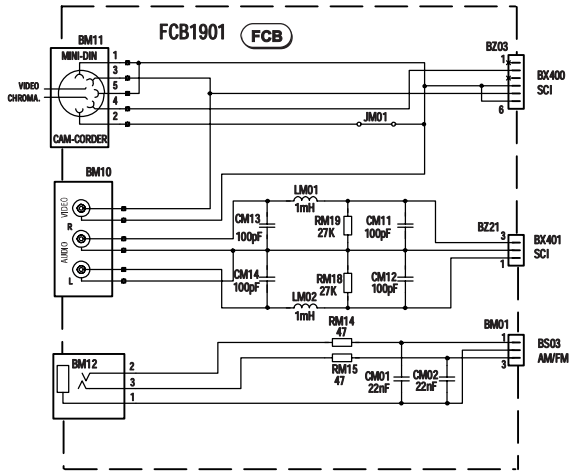
IR1900

SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE
LATO SALDATURE - LADO SOLDADURAS

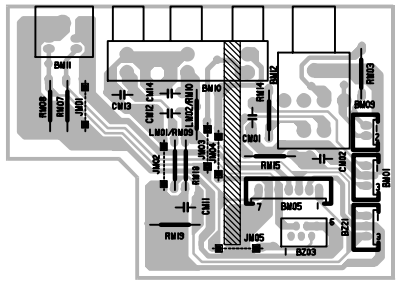


FRONT CONNECTOR BOARD - PRISES EN FACADE ET INTERCONNEXION DU CLAVIER - FRONT ANSCHLUSSPLATTE - PIASTRA CONNESSIONE FRONTALE - PLÁTINA MANDOS FRONTAL

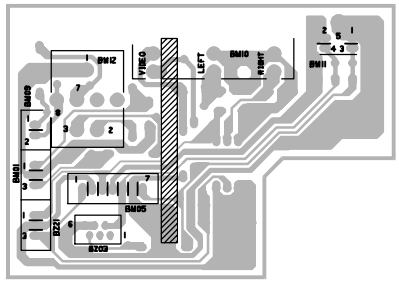
FCB1901



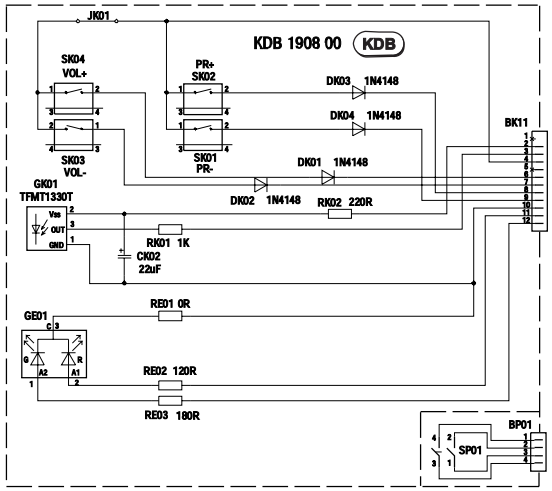
COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES



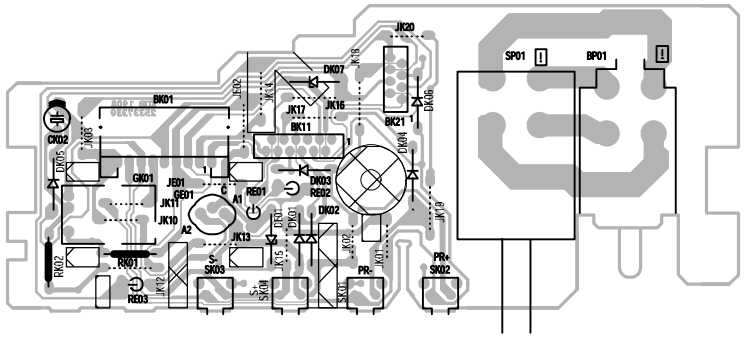
SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS



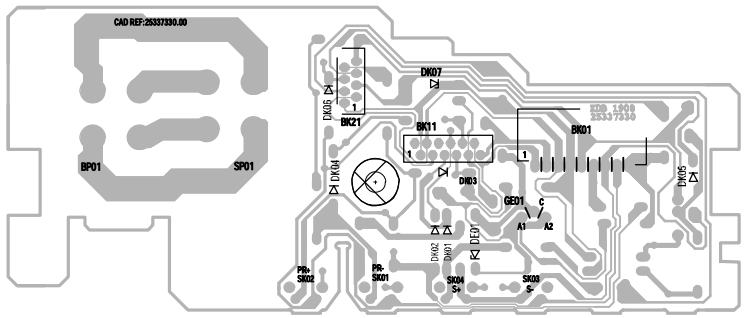
KDB1908



COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES

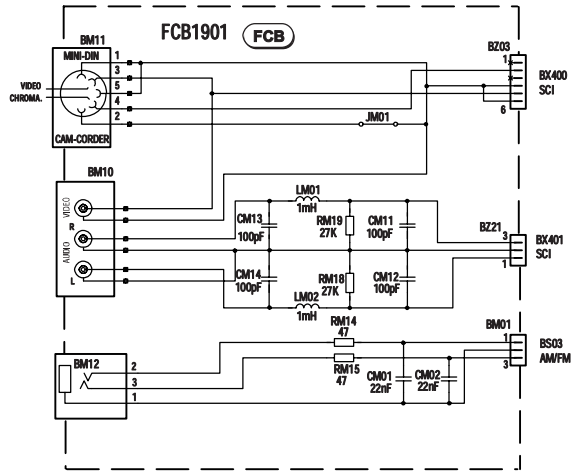


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

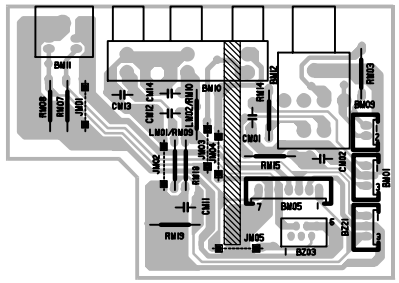


FRONT CONNECTOR BOARD - PRISES EN FACADE ET INTERCONNEXION DU CLAVIER - FRONT ANSCHLUSSPLATTE - PIASTRA CONNESSIONE FRONTALE - PLÁTINA MANDOS FRONTAL

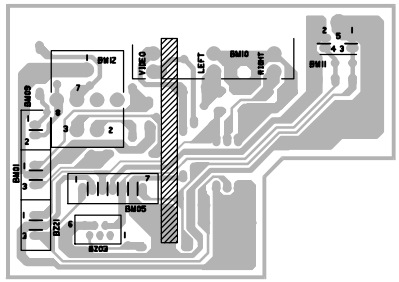
FCB1901



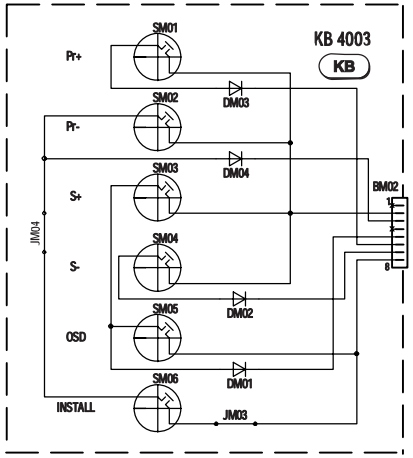
COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES



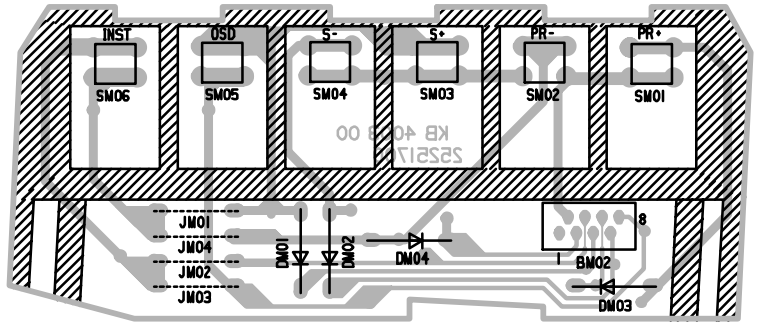
SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS



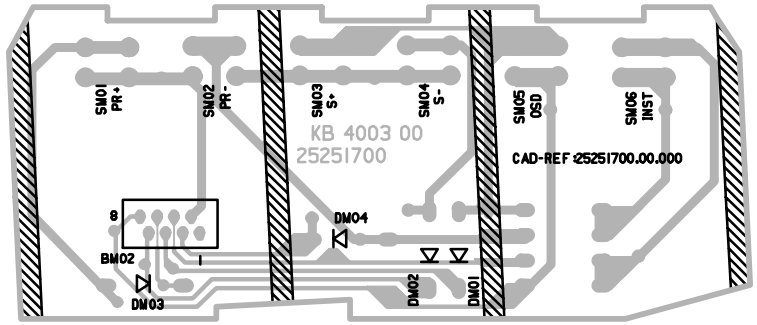
KB 4003



COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI
LADO COMPONENTES

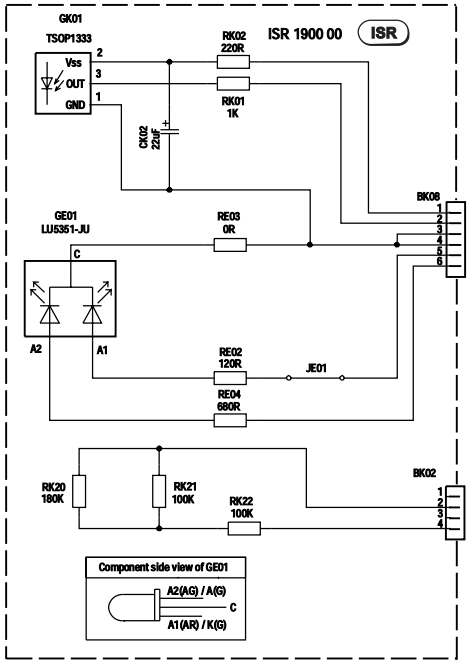


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE -
LADO SOLDADURAS



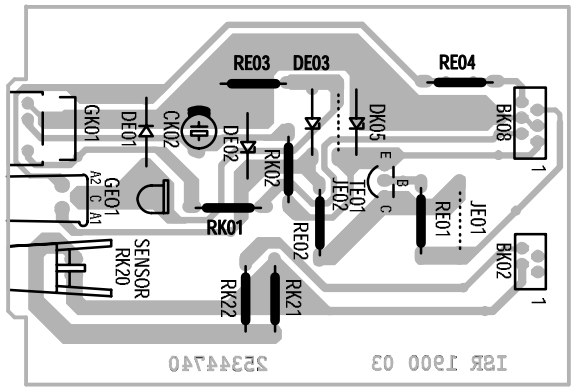
IR RECEIVER - PLATINE RECEPTEUR INFRA-ROUGE - IR EMPFÄNGER - LPTL. PIASTRA RICEVITORE IR - PLATINA RECEPTOR IR

ISR19100



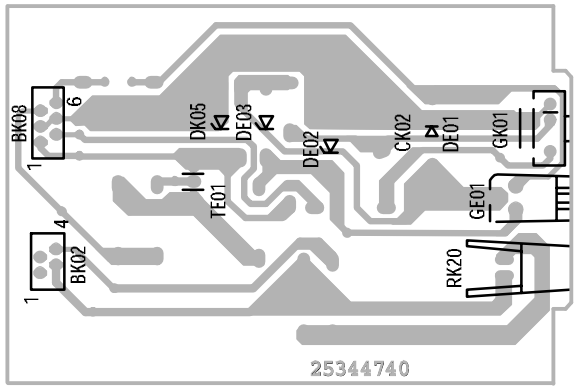
ISR19100

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES

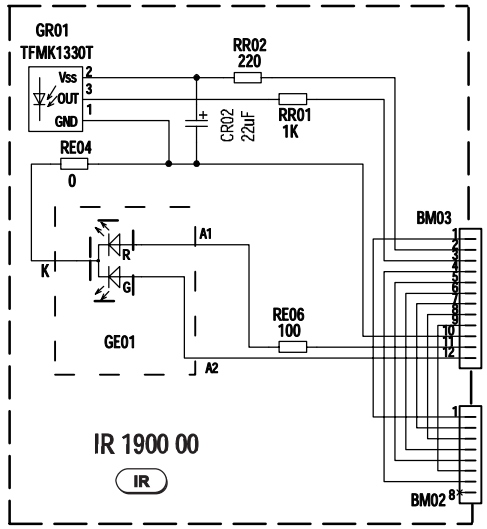


ISR19100

SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE
LATO SALDATURE - LADO SOLDADURAS

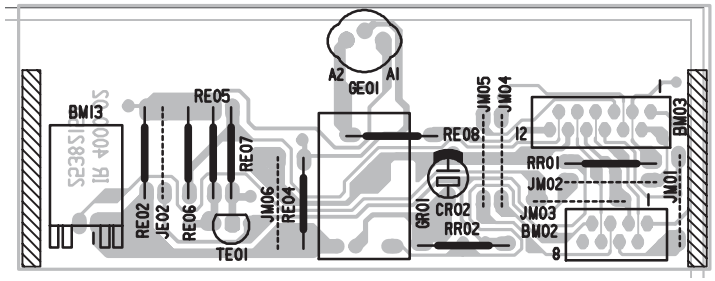


IR1900



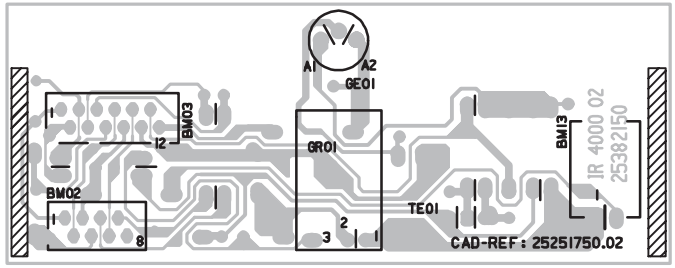
IR1900

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES



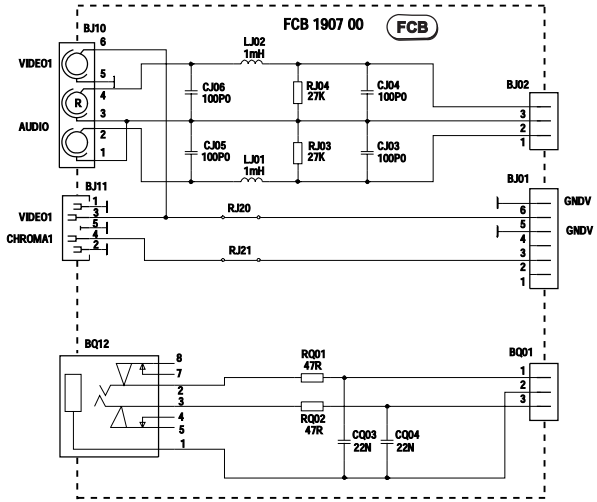
IR1900

SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE
LATO SALDATURE - LADO SOLDADURAS

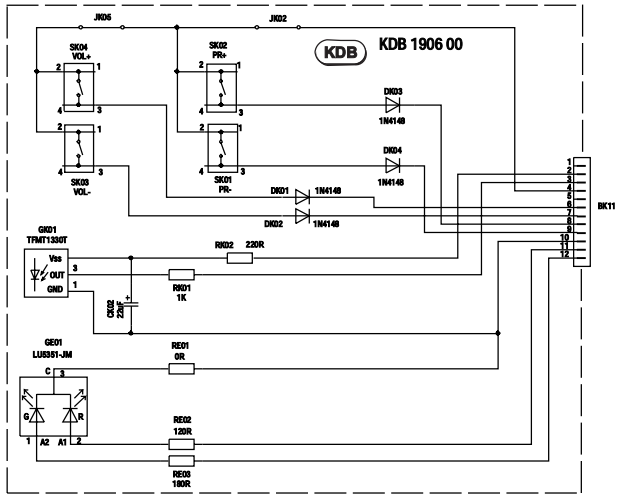


FRONT CONNECTOR BOARD - PRISES EN FACADE ET INTERCONNEXION DU CLAVIER - FRONT ANSCHLUSSPLATTE - PIASTRA CONNESSIONE FRONTALE - PLÁTINA MANDOS FRONTAL

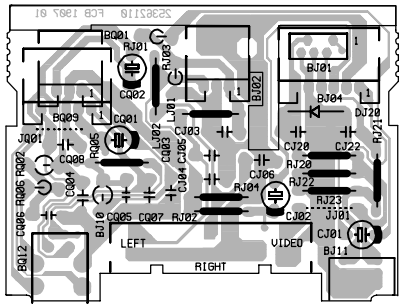
FCB1907



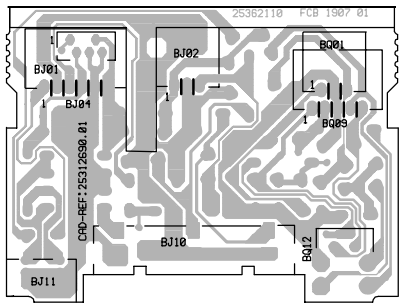
KDB1906



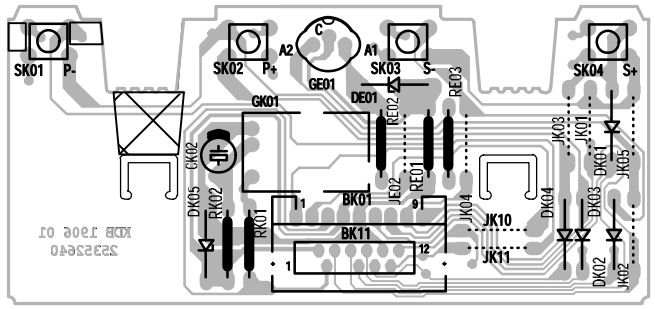
COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES



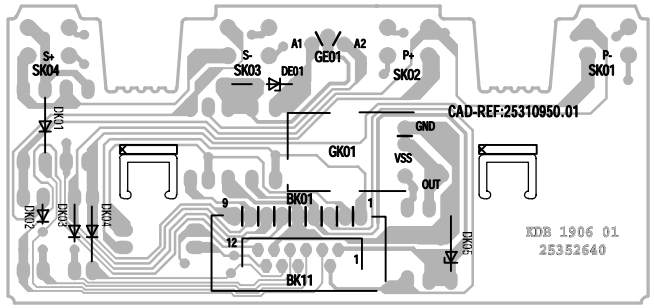
SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS



COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES



SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

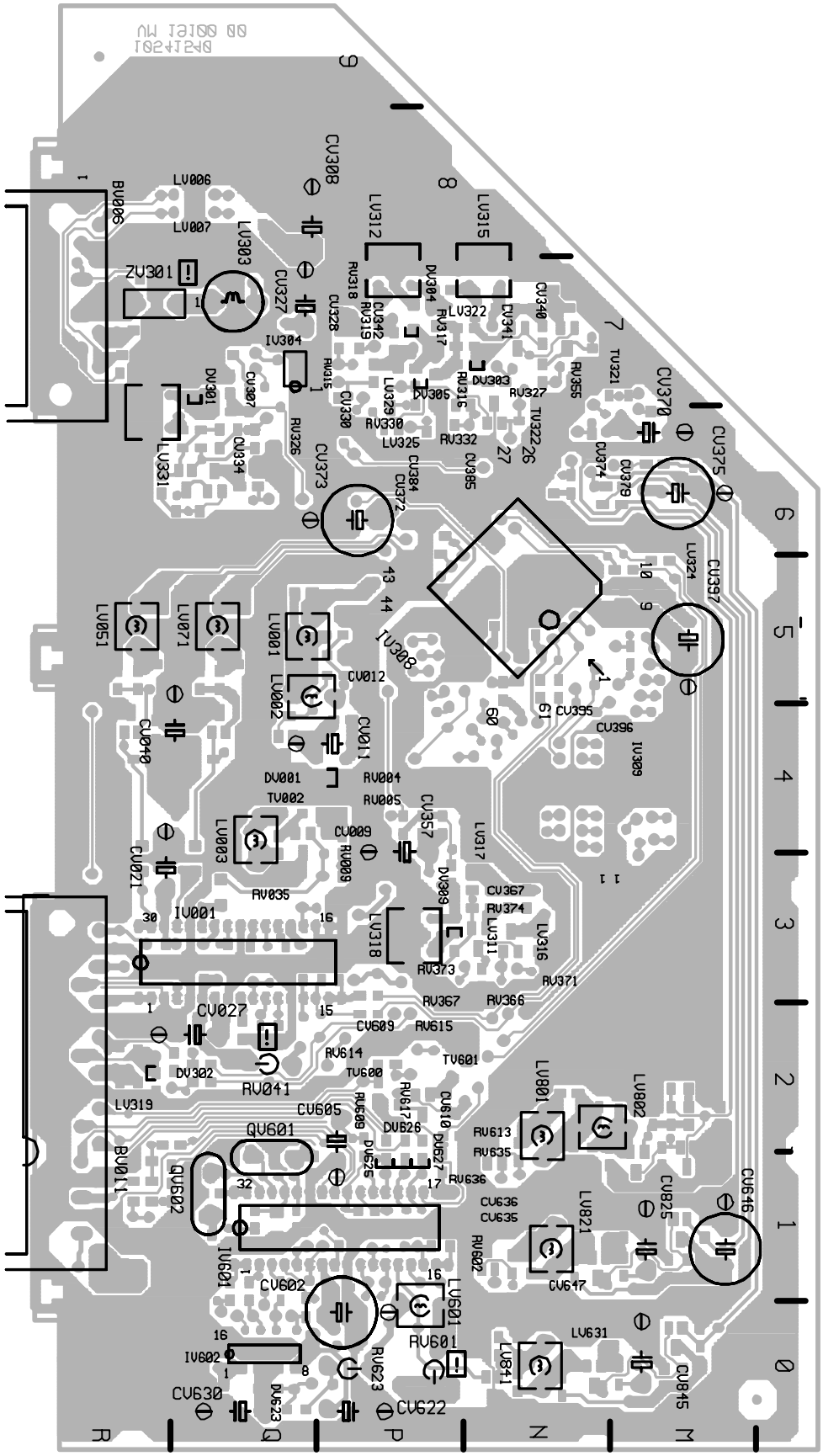


ICC19 100 Hz
First issue 09 / 97

Updated 11 / 99

VM19100

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES

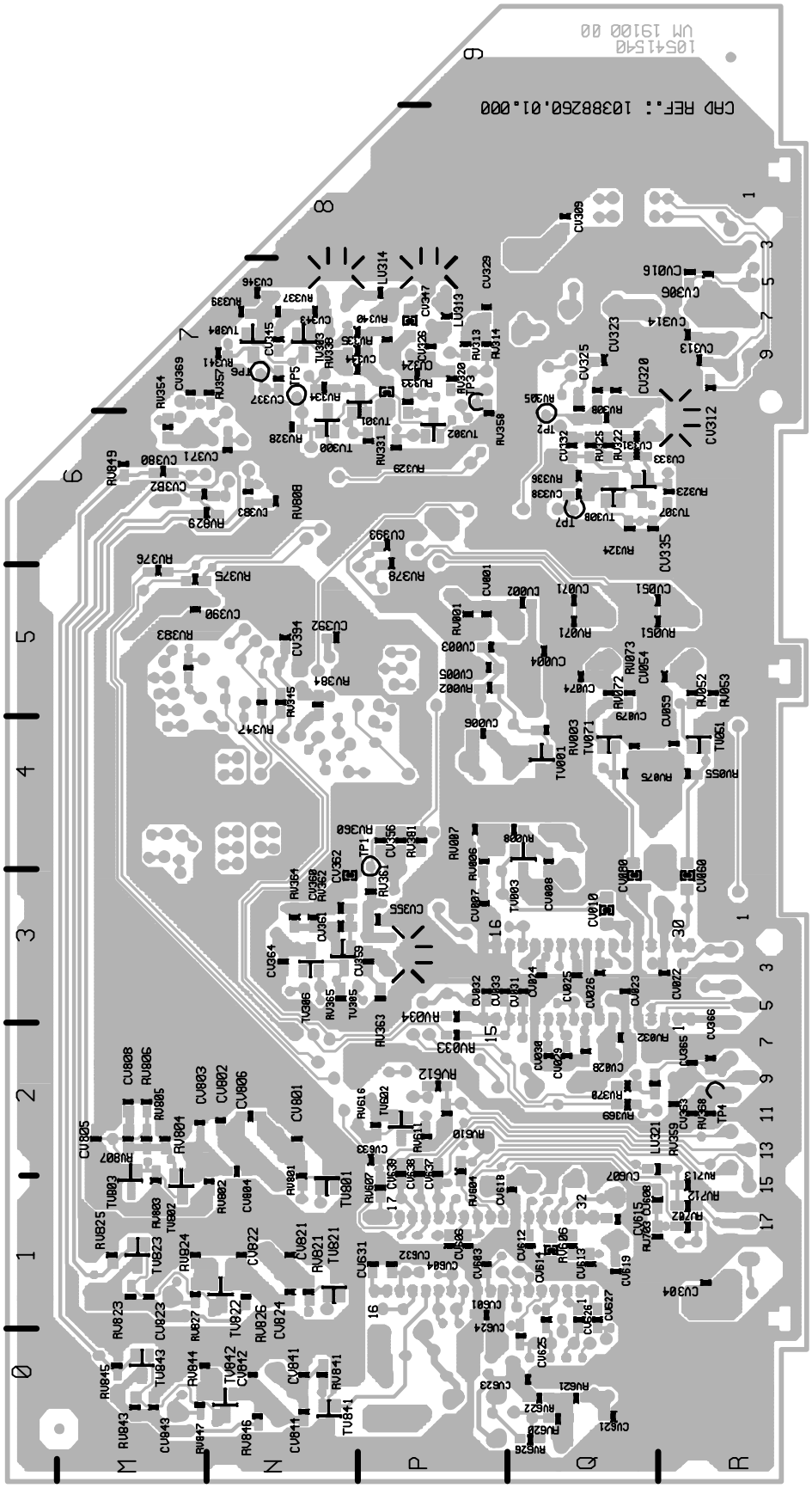


RP C19
First issue 07 / 98

Updated 07 / 99

VM19100

SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

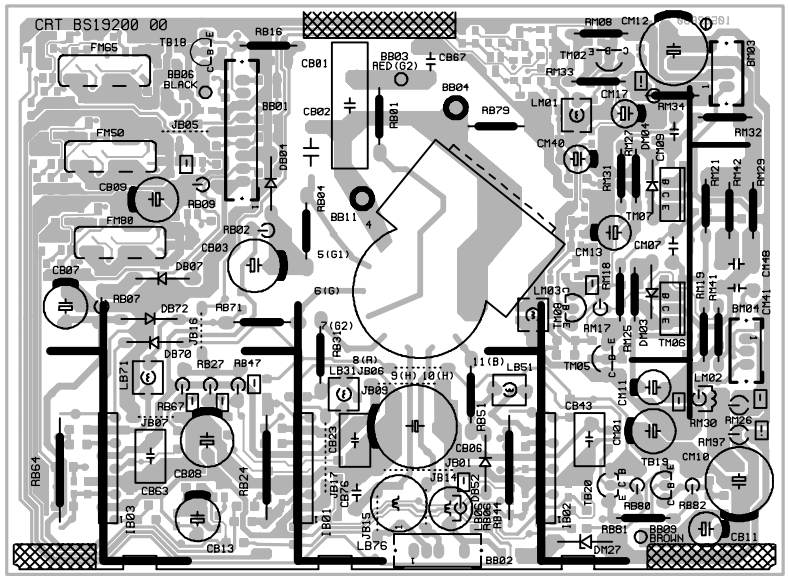


RP C19
First issue 07 / 98

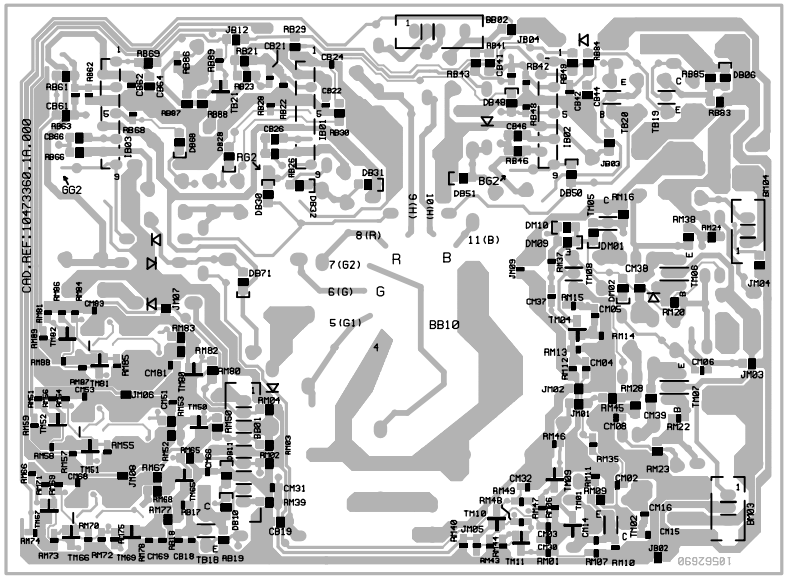
Updated 07 / 99

CRT BS 19200 - CRT BS 19201

COMPONENT SIDE - CÔTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

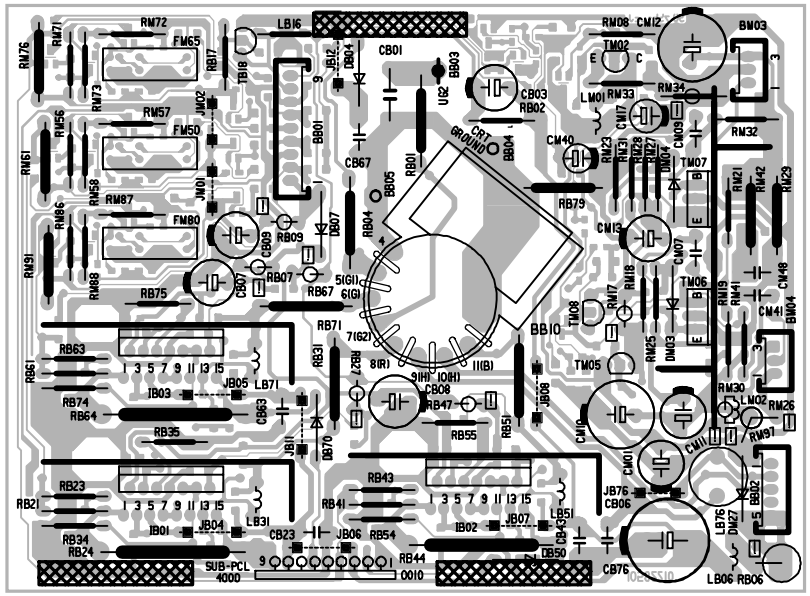


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

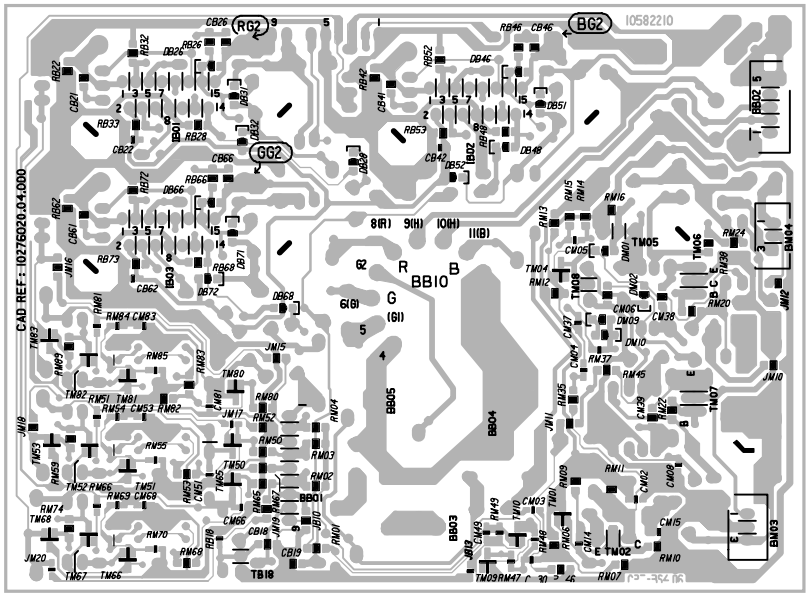


CRT BS 19100 - CRT BS 19400

COMPONENT SIDE - CÔTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

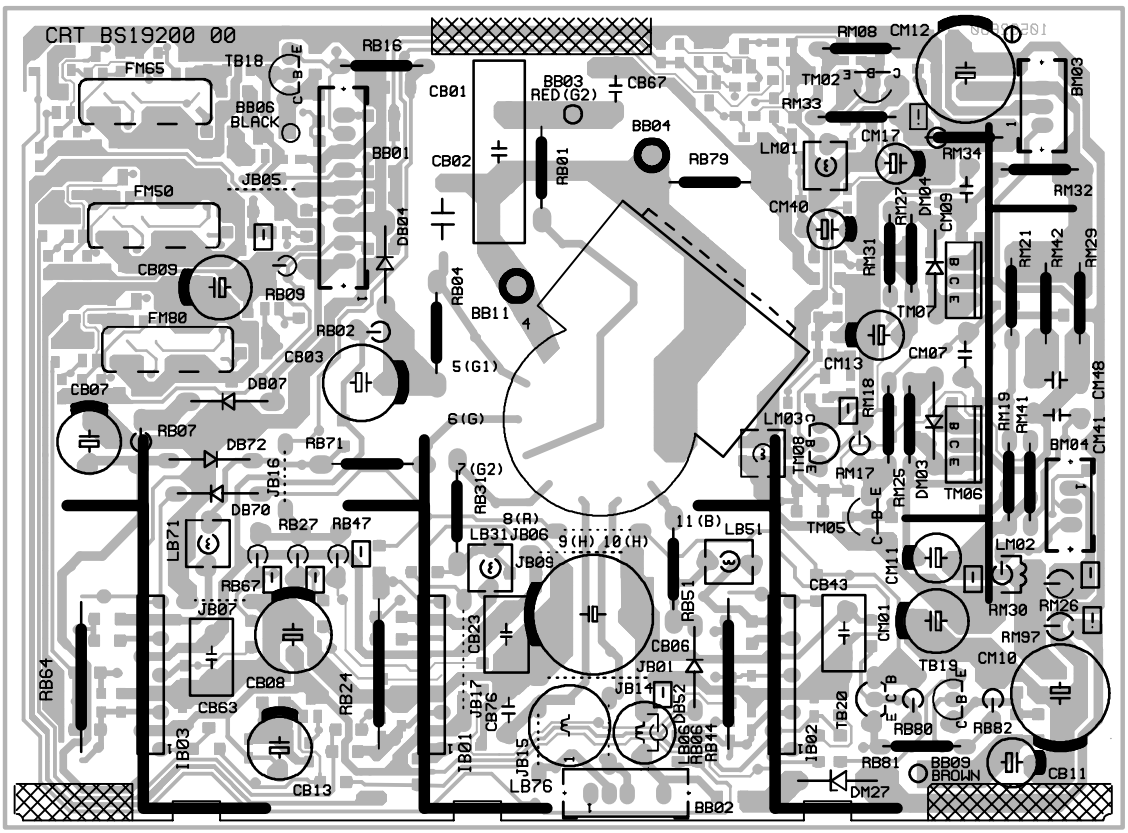


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

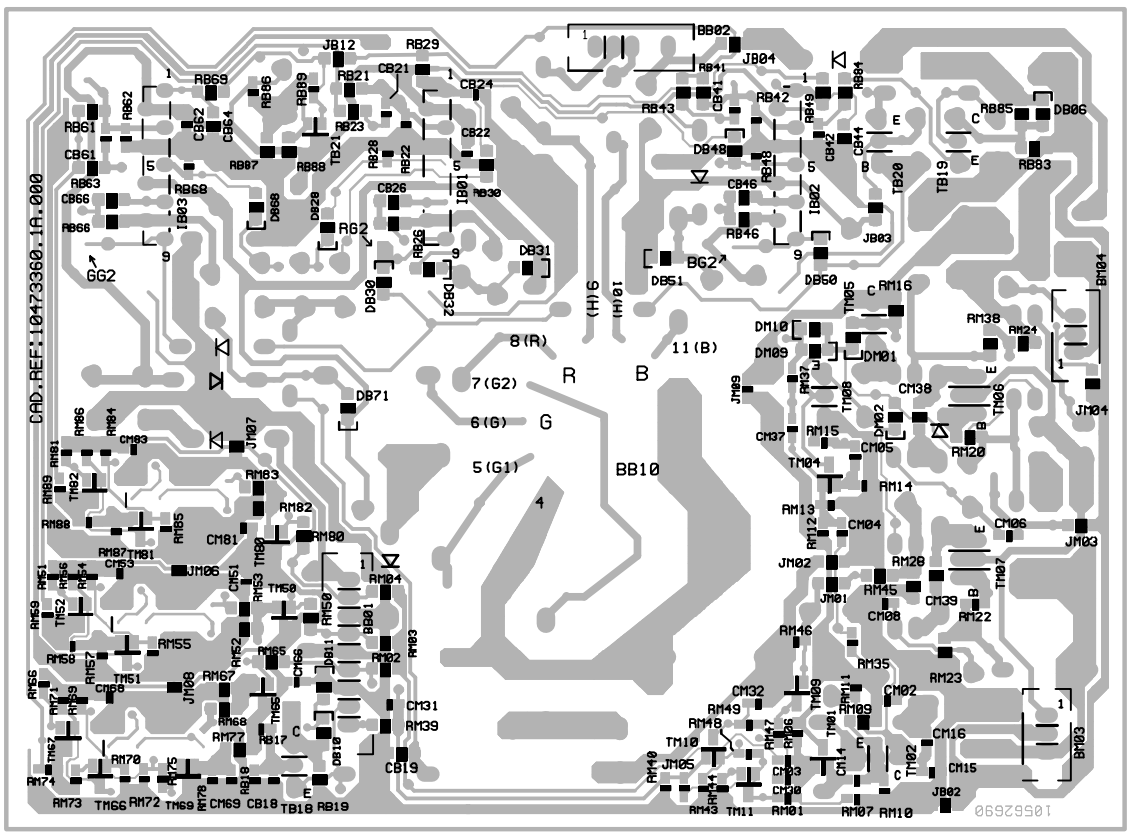


CRT BS 19200 - CRT BS 19201

COMPONENT SIDE - CÔTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

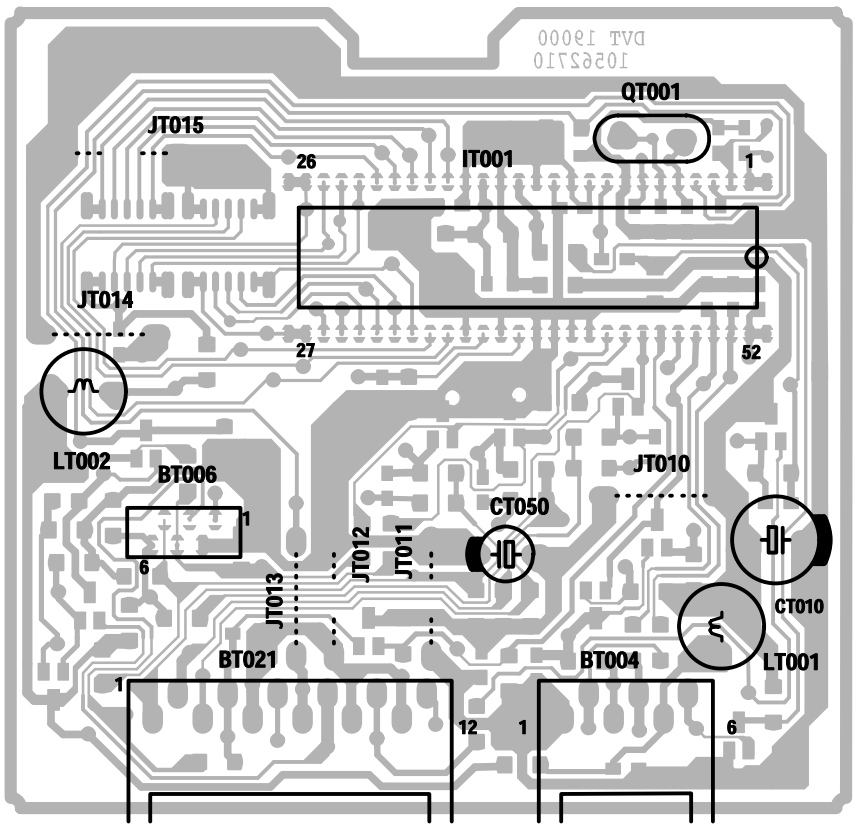


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

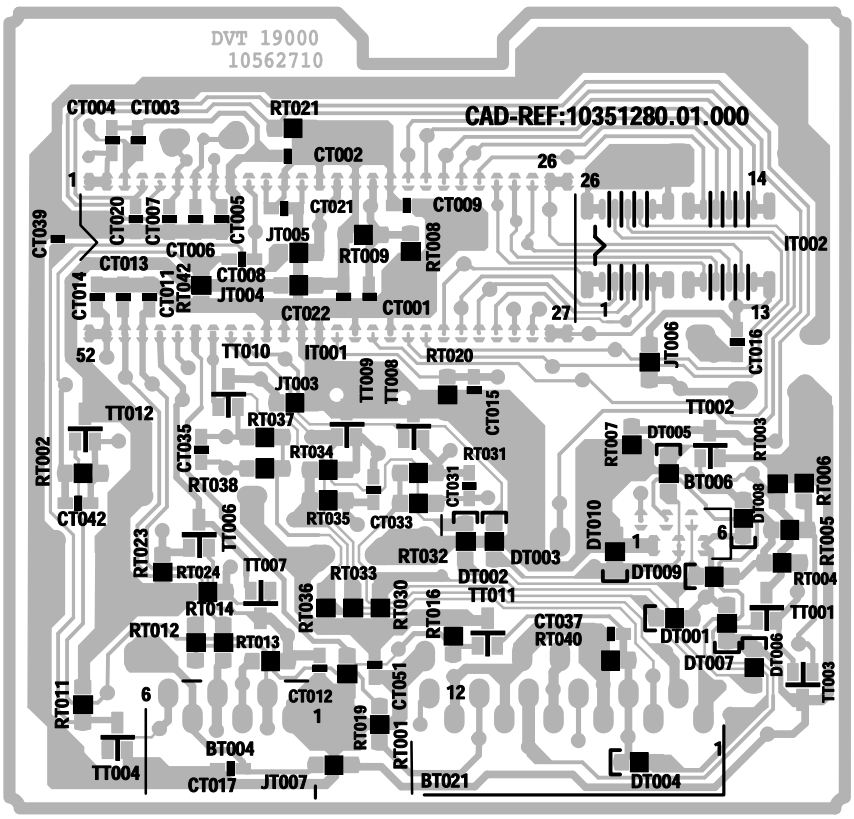


DVT 19410

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES



SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

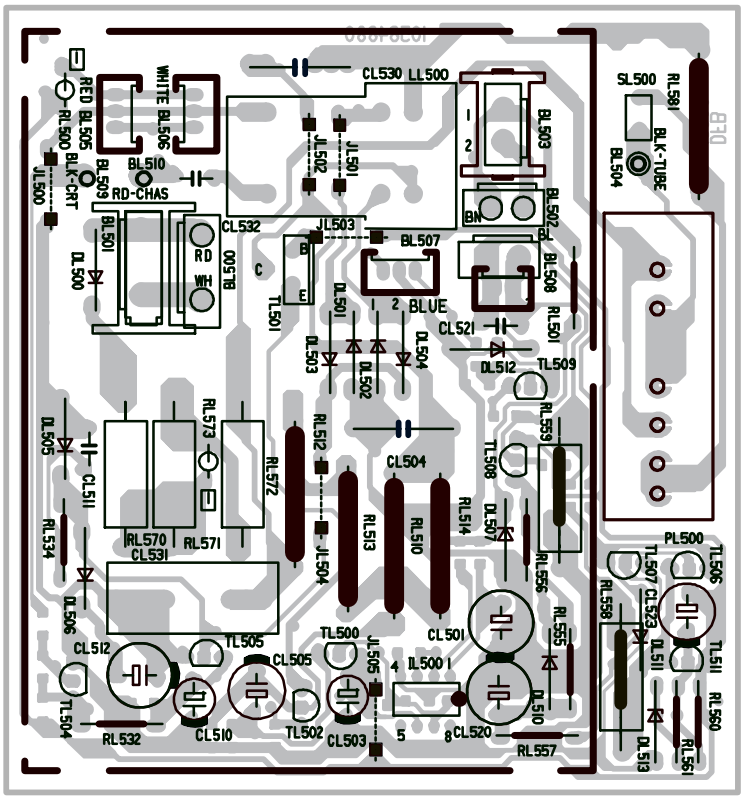


RP C19
First issue 07 / 98

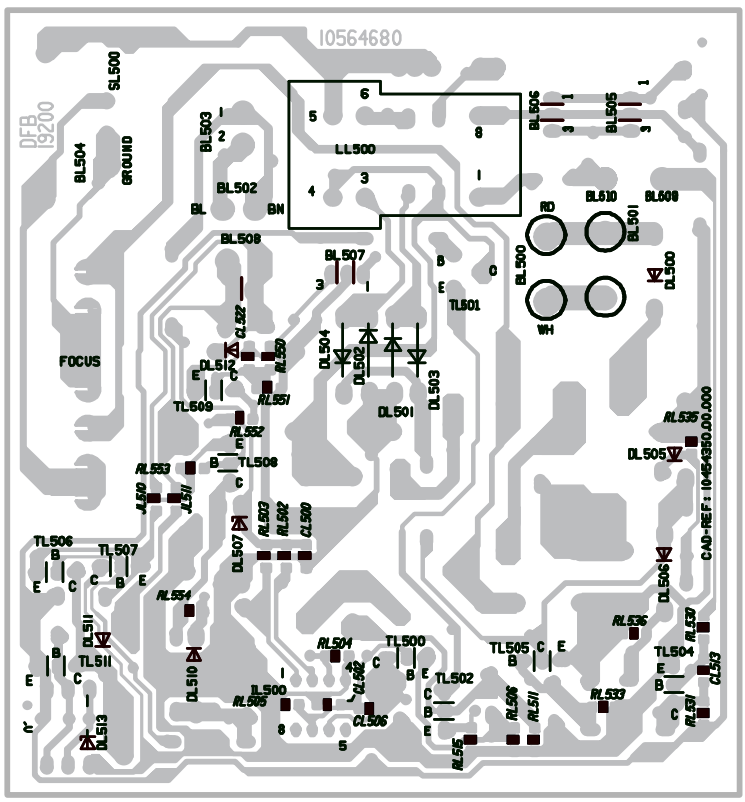
DFB 19200

DYNAMIC FOCUS MODULE - MODULE FOCUS DYNAMIQUE - DYNAMIKFOKUS BAUSTEIN - MODULO FUOCO DINAMICO - MÓDULO FOCO DINÁMICO

COMPONENT SIDE - CÖTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

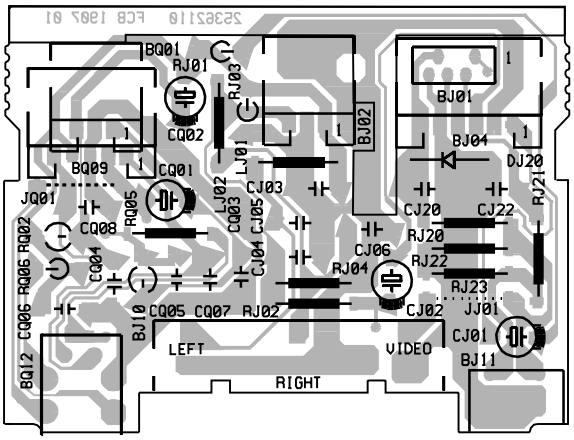


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

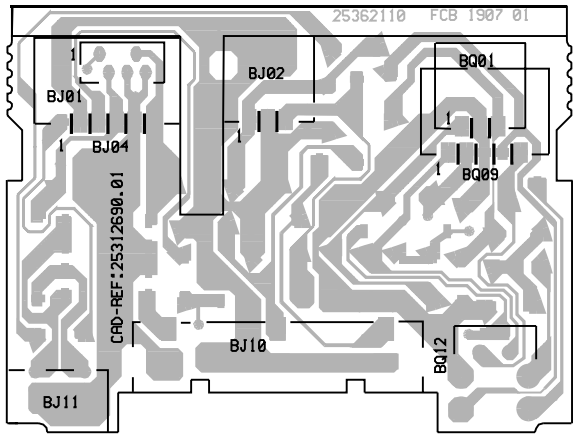


FCB 1907

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

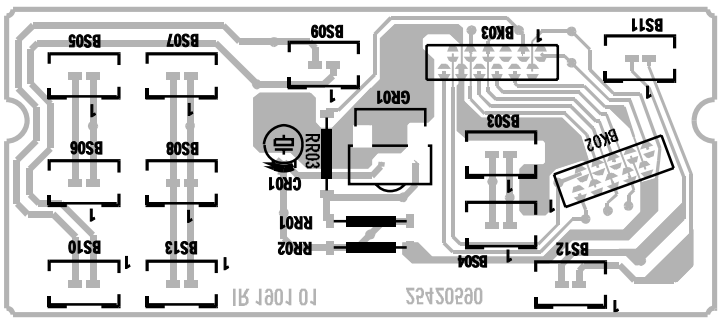


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

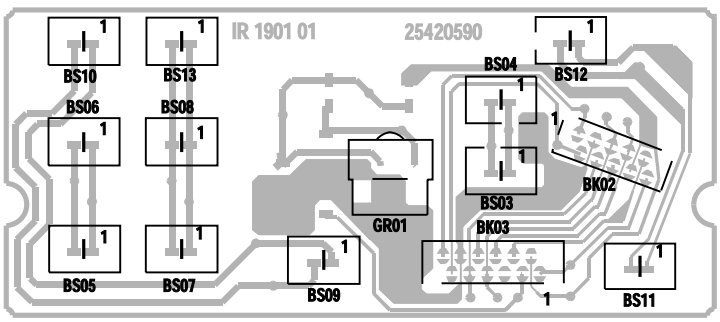


IR 1901

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

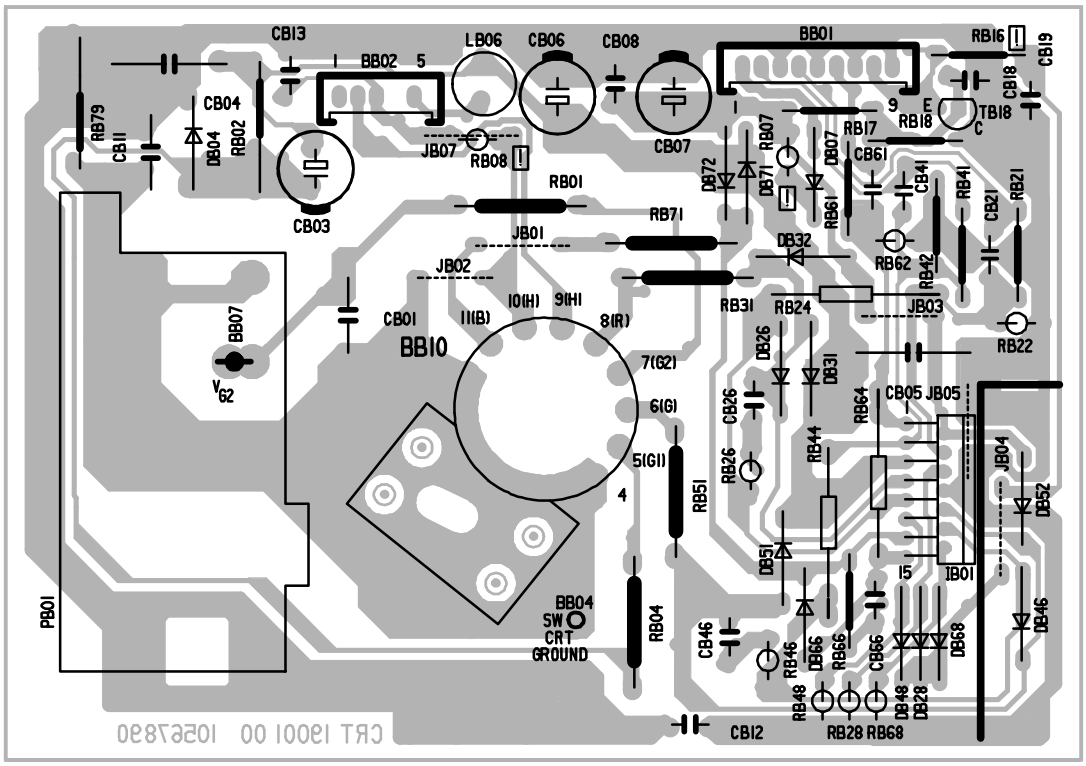


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

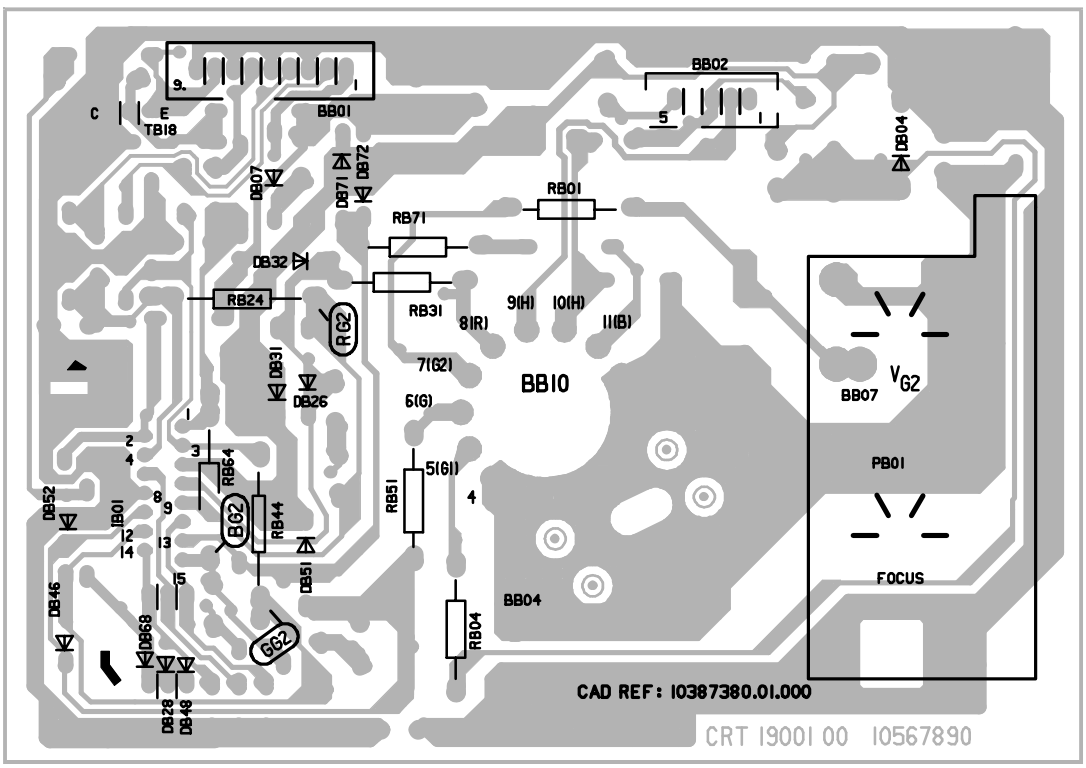


CRT19004 - CRT 19104

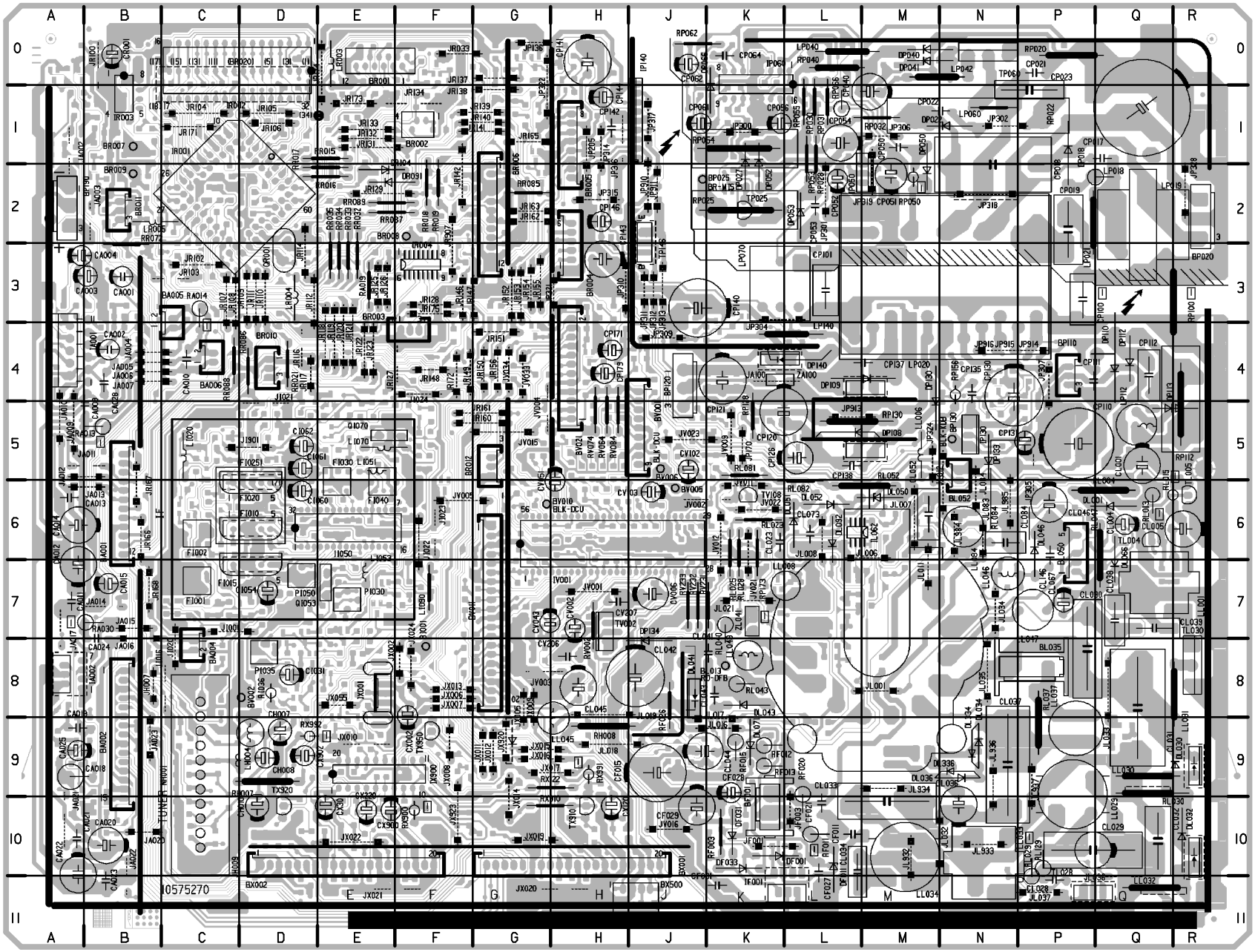
COMPONENT SIDE - CÔTE COMPOSANTS - BESTÜCKUNGSSEITE -
LATO COMPONENTI - LADO COMPONENTES



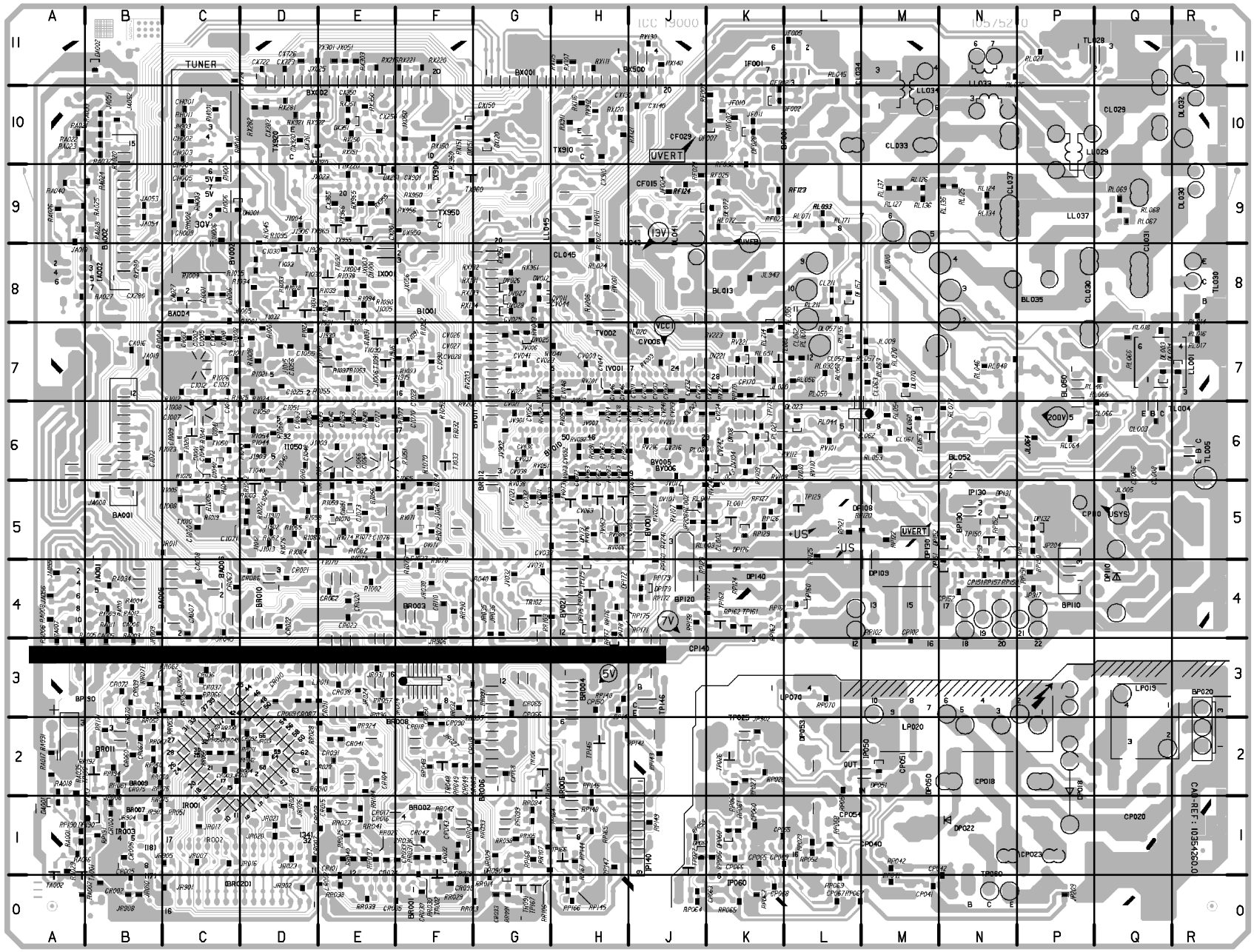
SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS



MAIN BOARD - PLATINE PRINCIPALE - CHASSIS GRUNDPLATTE - PIASTRA PRINCIPALE - PLATINA PRINCIPAL



SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS



COMPONENTS LOCATION - LOCALISATION DES ELEMENTS - LAGE DER BAUTEILE - LOCALIZZAZIONE DEGLI ELEMENTI - LOCALIZACION DE LOS COMPONENTES

* SOLDER SIDE - COTE CUIVRE - LÖTSEITE - LATO SALDATURE - LADO DEL COBRE

1 2 3

BA001	B 6
BA002	B 9
BA004	C 8
BA005	B 3
BA006	C 4
BF001	K 10
BF001	K 10
BI001	F 8
BL013	K 8
BL035	P 8
BL035	P 8
BL050	P 6
BL052	N 5
BP020	R 2
BP025	J 2
BP110	P 4
BP120	J 4
BP130	N 5
BP190	A 2
BR001	E 0
BR002	F 1
BR003	F 4
BR004	H 2
BR005	H 1
BR006	G 2
BR007	B 1
BR008	F 2
BR009	B 2
BR010	D 4
BR011	B 2
BR012	G 5
BV001	J 5
BV002	C 8
BV005	J 6
BV006	J 5
BV010	G 6
BV011	G 7
BV021	H 4
BX001	H 11
BX002	E 11
BX500	J 11

CA001	B 3
CA002	B 4
CA003	A 3
CA004	A 3
CA005 *	B 3
CA006 *	B 4
CA007 *	C 4
CA008 *	C 4
CA009	A 5
CA010	C 4
CA011	A 7
CA012	A 7
CA013	A 8
CA014	A 8
CA015	B 7
CA016 *	B 7
CA018	A 9
CA019	A 9
CA020	B 10
CA021	A 10
CA022	A 11
CA023	B 11
CA024	A 8
CA025	A 9
CA027 *	C 8
CA028	B 4
CF002 *	K 10
CF011	L 10
CF015	J 9
CF021	L 10
CF027	L 11
CF028	K 10
CF029	J 10
CF031	K 11
CH001 *	C 10
CH002 *	C 10
CH003 *	C 10
CH004 *	C 9
CH005 *	C 9
CH006 *	C 9
CH007	D 9
CH008	D 9
CH009 *	c 9
CH010	D 10
CI001 *	C 8
CI002 *	B 7
CI003 *	C 7
CI004 *	C 7
CI005 *	C 7
CI006 *	C 8
CI007	B 6
CI008 *	C 5
CI009	C 6
CI010 *	C 7
CI011 *	C 7
CI012 *	C 6

CI020 *	C 5
CI021 *	C 6
CI022 *	F 6
CI025 *	D 7
CI030 *	D 8
CI031	D 8
CI032 *	E 5
CI033 *	F 4
CI040 *	C 6
CI041 *	C 6
CI045 *	D 5
CI046 *	E 6
CI048 *	D 6
CI049 *	D 6
CI050 *	D 6
CI051 *	D 6
CI052 *	D 6
CI053 *	E 6
CI054	D 7
CI055 *	D 7
CI056 *	D 7
CI060	D 6
CI061	D 5
CI062	D 5
CI063 *	D 6
CI064 *	E 5
CI065 *	E 5
CI066 *	E 5
CI070 *	F 6
CI071 *	C 5
CI072 *	B 6
CI073 *	E 5
CI074 *	F 5
CI077 *	E 6
CI078 *	E 4
CI090 *	F 7
CL001	Q 5
CL002 *	K 5
CL003 *	Q 6
CL004	Q 6
CL005	R 6
CL006 *	Q 5
CL008 *	Q 6
CL023	L 6
CL027 *	J 6
CL028	P 11
CL029	Q 10
CL029	Q 10
CL030	Q 8
CL031	Q 8
CL032	R 10
CL033	M 10
CL034	M 11
CL036	N 10
CL037	P 9
CL038	Q 7
CL039	R 7
CL041	K 8
CL042	J 8
CL043	K 8
CL044	K 9
CL045	H 8
CL046	P 6
CL052	M 6
CL057 *	L 7
CL061 *	M 6
CL062 *	L 7
CL063 *	M 7
CL066 *	Q 6
CL067	P 7
CL073	L 8
CL084	P 6
CL146	P 6
CL211 *	L 8
CP017	Q 1
CP018	N 1
CP019	P 2
CP020	Q 1
CP021	P 0
CP022	N 1
CP023	P 0
CP040	M 0
CP041 *	N 0
CP042 *	N 0
CP050	M 1
CP051	M 2
CP052	L 2
CP053	L 2
CP054	L 1
CP055 *	L 1
CP056	L 1
CP060 *	K 1
CP061	J 1
CP062	J 0
CP063 *	J 0
CP064	K 0
CP065 *	K 0
CP066	K 0
CP067	L 0
CP068	K 0
CP069	L 0
CP100	P 3
CP100	Q 3

CP101	L 3
CP102 *	M 3
CP110	P 5
CP111	Q 4
CP112	Q 4
CP120	L 5
CP121	K 4
CP126	L 5
CP130	P 4
CP131	P 5
CP135	N 4
CP137	M 4
CP138	L 5
CP140	J 3
CP141	H 0
CP142	H 1
CP143	H 3
CP144	H 1
CP146	H 2
CP150 *	H 2
CP151 *	N 4
CP152 *	N 4
CP168 *	G 1
CP170 *	K 6
CP171	H 4
CP176 *	H 4
CP179	H 4
CR001	B 0
CR002 *	A 0
CR003 *	C 2
CR004 *	C 2
CR005 *	B 0
CR006 *	B 0
CR007 *	D 0
CR008 *	D 1
CR009 *	D 2
CR010 *	D 2
CR011 *	D 2
CR015 *	D 1
CR016 *	E 1
CR017 *	E 1
CR018 *	F 2
CR019 *	F 2
CR020 *	E 4
CR021 *	D 4
CR022 *	D 3
CR023 *	E 4
CR029 *	F 0
CR030 *	E 0
CR032 *	F 0
CR033 *	E 0
CR034 *	E 0
CR035 *	E 0
CR036 *	C 3
CR037 *	C 3
CR038 *	E 3
CR039 *	B 2
CR041 *	E 2
CR042 *	F 1
CR043 *	F 1
CR049 *	F 2
CR050 *	F 2
CR060 *	B 2
CR062 *	D 4
CR063 *	C 4
CR065 *	G 2
CR066 *	G 2
CR067 *	B 2
CR072 *	B 3
CR075 *	B 1
CR085 *	F 2
CR086 *	C 4
CR087 *	D 2
CR090 *	F 2
CR091 *	E 2
CR092 *	C 2
CR093 *	G 0
CR098 *	F 0
CR100 *	B 1
CR101 *	E 0
CR104 *	E 1
CR110 *	F 4
CV002	H 7
CV003 *	J 8
CV006	J 7
CV007 *	J 6
CV008 *	H 6
CV009 *	H 7
CV011 *	J 6
CV012 *	J 6
CV021 *	G 6
CV022 *	G 7
CV023 *	G 7
CV025 *	G 7
CV026 *	F 7
CV027 *	F 7
CV028 *	F 7
CV031 *	G 5
CV032 *	G 5
CV033 *	G 4
CV036 *	G 6
CV037 *	G 6
CV038 *	G 6

CV041 *	G 7
CV042 *	G 6
CV043	G 7
CV044 *	G 8
CV046 *	H 6
CV047 *	H 6
CV048	H 7
CV051	H 6
CV052 *	G 6
CV062 *	H 5
CV063 *	H 5
CV072 *	H 5
CV073 *	H 5
CV082 *	H 5
CV083 *	H 5
CV092 *	H 6
CV102	J 5
CV103	J 6
CV201 *	H 6
CV206	H 8
CV207	H 7
CV213 *	J 6
CV216 *	J 6
CV222 *	K 6
CV231 *	J 6
CV232 *	J 6
CV234 *	K 6
CV241 *	J 6
CV242 *	K 6
CV243 *	K 5
CV246 *	H 6
CX001 *	E 9
CX002	F 9
CX120	H 10
CX130 *	J 10
CX140 *	J 10
CX150 *	G 10
CX220 *	E 10
CX250 *	E 10
CX280 *	B 8
CX282 *	D 10
CX301	D 10
CX350 *	E 10
CX722 *	D 11
CX723 *	D 11
CX724 *	C 11
CX726 *	D 11
CX900	E 10
CX901 *	F 9
CX902	D 9
CX910 *	H 10
CX920 *	D 10
CX950 *	F 9
CX965 *	E 9

DA001 *	A 1
DA002 *	A 11
DF001	K 10
DF002 *	K 10
DF007 *	K 10
DF011	L 11
DF028 *	K 10
DF031	K 10
DF033	K 11
DH001 *	C 9
DI001	C 5
DI002	C 7
DI040	C 6
DI041	C 6
DI051	E 5
DI070	E 5
DI071	F 5
DL001	Q 6
DL003 *	R 7
DL004 *	R 7
DL023 *	L 6
DL030	R 9
DL030	R 9
DL032	R 10
DL032	R 11
DL032	R 10
DL034	N 9
DL036	N 9
DL041	J 8
DL041	J 8
DL041	J 8
DL043	K 8
DL046	P 6
DL050	M 6
DL051	L 6
DL052	L 6
DL057 *	L 7
DL060 *	M 6
DL066	Q 7
DL070 *	M 7
DL071	K 9
DL072 *	K 9
DL092	L 6
DL157 *	L 8
DP018	P 1

DP022	N 1
DP027	K 1
DP040	N 0
DP041	N 0
DP050	M 1
DP051 *	M 2
DP052	K 1
DP053	L 2
DP060 *	K 1
DP061 *	J 0
DP088	K 0
DP108	M 5
DP108	M 4
DP108	L 5
DP109	M 4
DP109	M 4
DP110	Q 4
DP112	Q 4
DP113	R 5
DP126 *	K 5
DP130	N 4
DP131 *	N 5
DP132 *	P 5
DP133	N 5
DP134	J 8
DP140	L 4
DP140	L 4
DP140	L 4
DP151 *	N 4
DP152 *	N 5
DP160 *	L 4
DP172 *	H 4
DP173 *	H 4
DP175 *	H 3
DP178 *	H 3
DP179 *	J 4
DP180 *	A 1
DR090 *	G 0
DR091	E 2
DR104	E 1
DV011 *	G 8
DV012 *	G 8
DV025 *	G 7
DV026 *	G 8
DV027 *	G 8
DV028 *	G 8
DV101 *	J 5
DV104 *	K 5
DV106 *	K 6
DV221 *	K 7
DX001 *	E 8
DX120 *	G 10
DX151 *	F 10
DX220 *	E 9
DX251 *	E 9
DX301 *	D 10
DX351 *	E 10

FI001	C 7
FI002	C 6
FI010	C 6
FI015	C 7
FI020	C 8
FI030	E 6
FI040	E 6
FIDU1	B 11
FIDU2	R 0

IA001	A 8
IA001	A 7
IA001	A 4
IA002	A 2
IF001	L 11
II050	E 6
IL082	M 6
IP050	M 1
IP080	K 0
IP130	N 5
IP140	J 2
IP140	J 1
IR001	C 2
IR002	C 0
IR003	B 0
IR004	F 3
IV001	H 6
IX001	E 8
IX001	E 8
IX900	E 9

JA002	A 1
JA003	A 2
JA004	B 4

JA005	B 4
JA006	B 4
JA007	B 4
JA008 *	A 5
JA009	A 5
JA010	A 5
JA011	A 5
JA012	A 5
JA013	A 6
JA014	B 7
JA015	B 7
JA016	B 8
JA017	A 7
JA018 *	A 8
JA019 *	B 7
JA020	B 10
JA021	A 10
JA022	B 11
JA023	B 9
JA051 *	A 10
JA052 *	B 10
JA053 *	B 9
JA054 *	B 9
JA055 *	A 4
JA056 *	A 4
JA100	K 4
JF001	K 10
JF003	L 10
JF004 *	J 9
JF005 *	L 11
JF010 *	K 10
JF011 *	K 10
JH005 *	C 8
JH006 *	C 8
JH007	B 8
JH009	C 11
JH903 *	C 10
JI001	D 7
JI004 *	D 9
JI005 *	E 7
JI006 *	E 7
JI008 *	C 6
JI009 *	E 6
JI010 *	D 5
JI012 *	C 5
JI013 *	D 5
JI014 *	F 5
JI015 *	D 7
JI016	B 8
JI020	B 8
JI021	D 5
JI022	F 6
JI023	F 6
JI024	F 4
JI901	C 5
JI902 *	D 5
JI903 *	D 6
JI906 *	D 8
JI910 *	D 5
JI915 *	E 7
JI916 *	E 7
JI928 *	D 8
JI930 *	D 7
JI931 *	D 8
JL001	M 8
JL005 *	Q 5
JL006	M 7
JL007	M 6
JL008	L 6
JL009 *	M 7
JL010 *	M 8
JL011	M 7
JL012	N 6
JL016	K 9
JL017	K 9
JL018	H 9
JL019	H 9
JL020 *	K 7
JL021	K 7
JL032	N 10
JL033	Q 8
JL034	N 7
JL035	N 8
JL036	Q 11
JL037	P 11
JL084 *	P 6
JL083	N 6
JL084	N 6
JL932	M 10
JL933	N 10
JL934	M 10
JL936	N 10
JL937	P 10
JL943 *	K 8
JL984	N 6
JL985	P 6
JP136	G 0
JP170	K 5
JP204 *	P 5
JP205	H 1
JP208 *	J 5
JP209 *	P 0
JP300	K 1

JP302	P 1
JP304	L 3
JP305	P 5
JP306	M 1
JP307	P 4
JP309	J 4
JP310	H 3
JP311	J 3
JP312	J 3
JP313	J 3
JP314	H 1
JP315	H 2
JP316	H 1
JP317	J 1
JP318	N 2
JP319	M 1
JP321	H 3
JP322	G 0
JP324	N 5
JP328	R 2
JP902 *	K 2
JP910	J 2
JP911	J 2
JP913	L 5
JP914	P 4
JP915	P 4
JP916	P 4
JP917 *	P 4
JR007 *	C 0
JR008 *	B 1
JR009 *	B 3
JR010 *	B 0
JR011 *	B 4
JR013 *	B 2
JR016 *	C 0
JR017 *	C 1
JR018 *	C 1
JR019 *	D 2
JR020 *	D 1
JR021 *	D 1
JR022 *	D 1
JR023 *	D 0
JR024 *	E 3
JR026 *	D 1
JR027 *	F 2
JR028 *	E 2
JR029 *	G 0
JR030 *	E 2
JR031 *	E 3
JR032 *	F 2
JR033	F 0
JR035 *	G 3
JR036 *	G 3
JR038 *	F 4
JR040 *	G 4
JR045 *	C 3
JR100	A 0
JR102	C 3
JR103	B 3
JR104	C 1
JR105	D 1
JR106	D 1
JR107	C 3
JR108	C 3
JR109	C 3
JR110	D 3
JR111	D 3
JR112	D 3
JR114	D 3
JR116	D 4
JR117	D 4
JR118	D 4
JR119	E 4
JR120	E 4
JR121	E 4
JR122	E 4
JR123	E 4
JR125	E 3
JR126	E 3
JR127	E 4
JR128	F 3
JR129	E 2
JR131	E 1
JR132	E 1
JR133	E 1
JR134	F 1
JR137	G 0
JR138	G 0
JR139	G 1
JR140	G 1
JR141	G 1
JR142	F 2
JR146	F 3
JR147	F 3
JR148	F 4
JR149	F 4
JR150	G 4
JR151	G 4
JR152	G 3
JR153	G 3
JR154	G 3
JR155	G 3
JR156	G 4

JR160	G 5
JR161	G 5
JR162	G 2
JR163	G 2
JR165	G 1
JR166	B 6
JR167	B 6
JR168	B 7
JR171	C 1
JR172	F 4
JR173	E 1
JR174	D 0
JR175	F 3
JR901 *	B 0
JR902 *	D 0
JR903 *	B 1
JR904 *	B 1
JR905 *	B 0
JR908 *	F 3
JR907	F 2
JR908 *	B 0
JV001	H 7
JV002	K 6
JV003	G 8
JV004	G 5
JV005	F 6
JV008 *	G 7
JV007 *	H 6
JV009	K 5
JV010 *	L 5
JV011	K 6
JV012	K 6
JV013 *	H 6
JV014 *	H 6
JV015	G 5
JV016	J 10
JV017 *	J 5
JV021 *	A 1
JV022	K 6
JV023	J 5
JV031 *	G 4
JV032 *	G 4
JV033	G 4
JV034	G 4
JV901 *	G 6
JV902 *	G 6
JX002	E 8
JX003 *	E 8
JX004 *	E 8
JX005	G 8
JX006	F 8
JX007	F 8
JX008	F 9
JX009	G 8
JX010	E 9
JX011	G 9
JX012	G 9
JX013	F 8
JX014	G 10
JX015	G 9
JX016	G 9
JX017	G 9
JX019	G 10
JX020	H 11
JX021	E 11
JX022	E 10
JX023 *	E 9
JX024	F 8
JX025 *	D 11
JX050 *	E 10
JX051 *	E 11
JX055	F 8
JX056 *	F 8
JX920	G 9
JX923	F 10

LH004	C 9
LH004	C 9
LI020	C 8
LI051	E 5
LI053	E 7
LI070	E 5
LI090	F 7
LL001	R 7
LL006	M 5
LL008	M 8
LL029	P 10
LL030	Q 9
LL031	R 8
LL032	R 11
LL033	N 11
LL034	M 10
LL037	P 9
LL043	K 8
LL045	H 9
LL046	P 7
LL047	P 7
LL084	N 6
LP018	Q 2
LP019	Q 2

LP020	N 3
LP020	N 3
LP021	Q 2
LP040	L 0
LP042	N 0
LP060	N 1
LP070	L 3
LP112	Q 5
LP112	Q 5
LP140	L 4
LR002 *	D 0
LR003	E 0
LR004	D 3
LR005	B 2
LR011 *	D 3

PI030	E 7
PI035	D 8
PI050	D 7

QI053	D 7
QI070	E 5
QR001	D 3

RA001 *	A 1
RA002 *	A 0
RA003 *	B 3
RA004 *	B 4
RA005 *	A 3
RA006 *	A 3
RA007 *	A 3
RA008 *	A 4
RA009 *	B 4
RA010 *	B 4
RA011 *	B 3
RA012 *	B 4
RA013	A 5
RA014	C 3
RA016 *	A 0
RA017 *	A 1
RA018 *	A 1
RA019	E 3
RA020 *	A 10
RA021 *	A 10
RA022 *	A 10
RA023 *	A 10
RA024 *	A 9
RA025 *	A 9
RA026 *	A 9
RA027 *	A 8
RA028 *	A 9
RA029 *	A 0
RA030	A 7
RA031 *	A 2
RA032 *	A 10
RA033 *	A 10
RA034 *	B 4
RA035 *	A 1
RA040 *	A 9
RF002 *	K 10
RF003	K 10
RF007 *	K 10
RF011	L 10
RF012	K 9
RF013	K 9
RF015	K 9
RF020	L 10
RF023 *	K 9
RF024 *	J 9
RF025 *	K 9
RF026 *	J 8
RF036 *	K 9
RF123 *	K 9
RF124 *	J 9
RH001 *	C 10
RH002 *	C 9
RH003 *	C 9
RH004 *	C 9
RH007	D 9
RH008	H 9
RH010 *	C 10
RH011 *	C 10
RI001 *	C 7
RI002 *	E 4
RI003 *	C 5
RI004 *	B 7
RI005 *	C 5
RI006 *	C 5
RI007 *	D 7
RI008 *	C 7
RI009 *	C 8
RI012 *	C 6
RI019 *	C 5
RI020 *	C 5

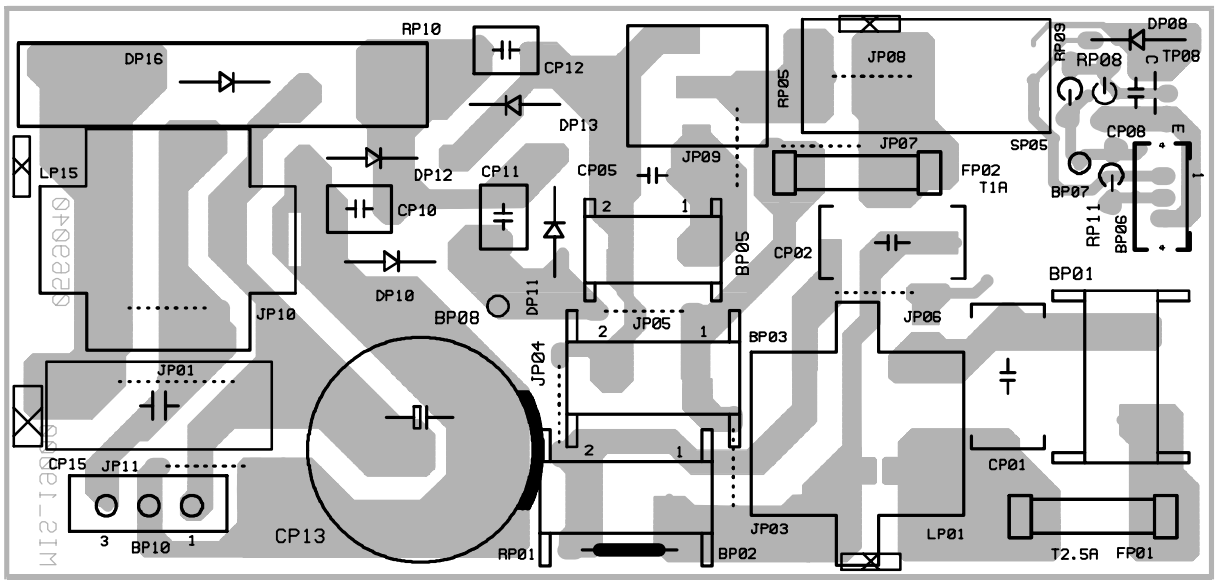
RI021 *	D 7
RI022 *	C 5
RI023 *	C 8
RI024 *	C 6
RI025 *	C 6
RI026 *	C 7
RI027 *	D 7
RI028 *	D 8
RI029 *	E 8
RI030 *	E 7
RI031 *	E 7
RI032 *	F 6
RI033 *	D 8
RI034 *	C 8
RI035 *	D 8
RI036	D 8
RI037 *	E 7
RI038 *	E 8
RI039 *	E 8
RI040 *	C 5
RI041 *	C 6
RI042 *	C 5
RI043 *	C 6
RI044 *	C 6
RI045 *	D 8
RI049 *	E 6
RI050 *	E 6
RI051 *	E 6
RI052 *	F 6
RI053 *	E 7
RI054 *	C 6
RI055 *	E 7
RI056 *	E 5
RI058 *	D 5
RI059 *	E 5
RI061 *	E 5
RI062 *	D 5
RI085 *	D 5
RI086 *	D 6
RI070 *	F 5
RI071 *	F 5
RI072 *	E 5
RI073 *	E 5
RI074 *	E 5
RI075 *	F 5
RI076 *	D 6
RI077 *	E 6
RI078 *	F 4
RI079 *	E 4
RI082 *	E 5
RI083 *	D 5
RI084 *	D 4
RI090 *	E 8
RI091 *	E 7
RI092 *	F 7
RI093 *	F 7
RI094 *	E 8
RI095 *	D 8
RL001 *	J 5
RL002 *	J 5
RL003 *	J 5
RL004	Q 6
RL004	Q 6
RL013	Q 6
RL014 *	R 7
RL015	R 6
RL016 *	R 7
RL017 *	R 7
RL018 *	R 7
RL020 *	J 7
RL021 *	K 6
RL023	K 6
RL024 *	H 8
RL025	K 6
RL026 *	P 11
RL027 *	P 11
RL028	K 6
RL029	P 11
RL030	Q 10
RL030	Q 10
RL037	P 9
RL040	K 8
RL043	K 8
RL044 *	L 6
RL045 *	L 11
RL046 *	N 7
RL047	Q 6
RL048 *	P 7
RL050 *	L 6
RL051 *	K 7
RL052	M 6
RL053 *	M 6
RL054 *	M 6
RL055 *	L 7
RL056 *	L 7
RL057 *	M 7
RL058 *	L 7
RL063 *	M 7
RL064 *	P 6
RL065 *	Q 6
RL066 *	Q 7
RL067 *	Q 9
RL068 *	Q 9

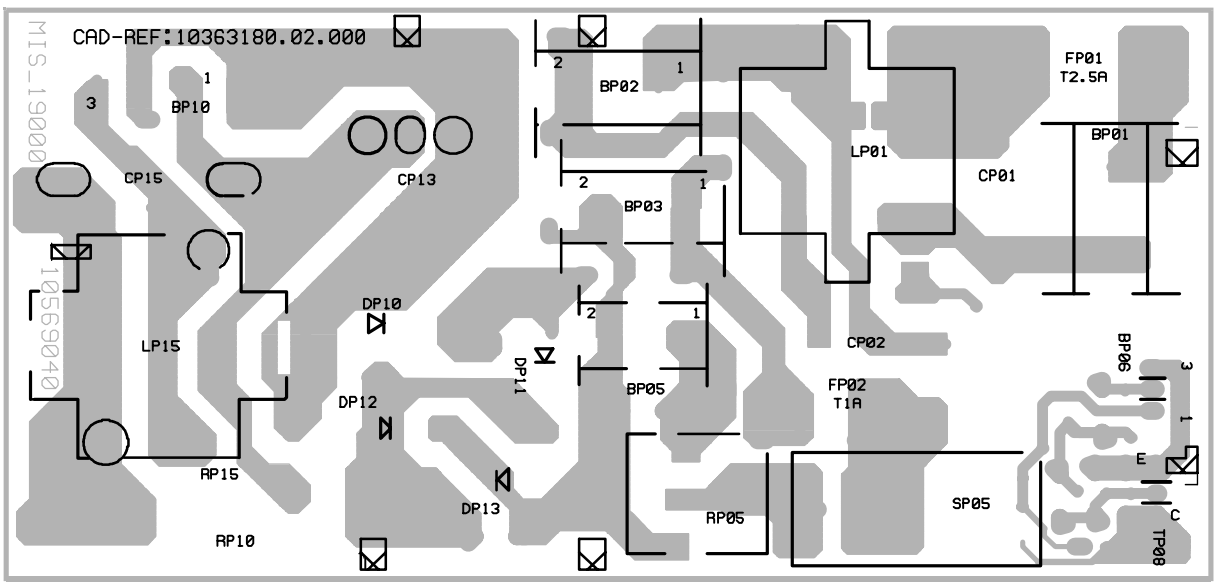
RL069 *	Q 9
RL070 *	M 7
RL071 *	L 9
RL072 *	K 9
RL073 *	N 6
RL080 *	J 6
RL081	K 5
RL082	L 6
RL084	P 6
RL092 *	L 7
RL093 *	L 9
RL124 *	N 9
RL125 *	N 9
RL126 *	M 9
RL127 *	M 9
RL129	P 10
RL134 *	N 9
RL135 *	N 9
RL136 *	M 9
RL137 *	M 9
RL146 *	Q 7
RL155 *	L 7
RL160 *	L 7
RL171 *	L 9
RL211 *	L 8
RL214 *	K 7
RP020	P 0
RP022	N 1
RP025	K 2
RP026	K 2
RP027 *	K 1
RP028	L 1
RP029 *	L 1
RP030	L 1
RP031	L 1
RP032	M 1
RP040	L 0
RP040	L 0
RP041 *	M 0
RP042 *	M 0
RP050	M 2
RP051 *	L 1
RP052 *	L 0
RP053	L 1
RP054	K 1
RP054	K 1
RP055	L 1
RP056 *	K 0
RP059 *	J 1
RP060 *	K 1
RP061 *	K 1
RP062	J 0
RP063 *	K 0
RP064 *	J 0
RP065 *	K 0
RP066	L 1
RP067 *	M 0
RP068 *	L 1
RP069 *	L 0
RP070 *	L 2
RP100	R 3
RP102 *	M 3
RP112	R 4
RP112	R 5
RP120 *	M 5
RP121 *	L 5
RP122 *	M 5
RP123 *	K 4
RP124 *	K 4
RP125 *	L 4
RP126 *	K 5
RP127 *	K 5
RP128	K 5
RP129 *	K 5
RP130	L 5
RP138 *	J 3
RP139 *	K 4
RP140 *	H 2
RP141 *	H 2
RP142 *	H 2
RP143 *	J 2
RP144 *	H 0
RP145 *	H 0
RP146 *	H 1
RP147 *	H 0
RP148 *	H 1
RP149 *	J 1
RP150 *	P 4
RP151 *	P 4
RP152 *	N 5
RP156	N 4
RP157 *	N 4
RP158 *	P 4
RP159 *	N 4
RP160 *	J 4
RP161 *	L 4
RP162 *	K 3
RP163 *	L 3
RP164 *	H 1
RP165 *	H 1
RP166 *	H 0
RP167 *	H 0

RP168 *	G 0
RP170 *	K 6
RP171 *	H 4
RP172 *	J 4
RP173	K 6
RP175 *	H 4
RP176 *	H 4
RP177 *	H 3
RP179 *	J 4
RP190 *	A 1
RP191 *	A 1
RP192 *	A 2
RP193 *	A 1
RP194 *	B 2
RR010 *	D 1
RR011 *	C 2
RR012 *	C 2
RR013 *	F 0
RR014 *	G 0
RR015	D 1
RR016	D 2
RR017	D 1
RR018	F 2
RR019	F 2
RR021	D 4
RR025 *	E 0
RR026 *	E 0
RR027 *	E 1
RR028 *	D 2
RR029 *	F 0
RR030 *	F 0
RR031 *	F 0
RR032	E 3
RR033	E 3
RR034	E 3
RR035	E 3
RR036 *	F 0
RR037 *	E 0
RR038 *	E 0
RR039 *	E 0
RR040 *	E 0
RR041 *	E 1
RR042 *	F 1
RR043 *	F 0
RR044 *	C 2
RR045 *	C 2
RR046 *	C 2
RR047 *	C 2
RR048 *	F 2
RR049 *	F 2
RR050 *	B 2
RR051 *	B 1
RR052 *	B 2
RR053 *	C 2
RR055 *	C 2
RR056 *	C 2
RR057 *	E 3
RR060 *	B 2
RR061 *	B 1
RR062 *	E 3
RR063 *	B 2
RR065 *	C 2
RR066 *	C 2
RR067 *	B 2
RR070 *	B 2
RR071 *	B 3
RR072	B 2
RR075 *	B 1
RR076 *	B 1
RR084 *	G 1
RR085	G 2
RR086	C 4
RR087	E 2
RR088	C 4
RR089	E 2
RR091 *	G 0
RR093 *	F 1
RR097 *	F 3
RR098 *	G 1
RR099 *	G 1
RR100 *	C 2
RR103 *	G 4
RR104 *	E 1
RR105 *	G 1
RR106 *	G 0
RR107 *	G 1
RR171 *	B 2
RR910 *	F 4
RR924 *	E 2
RV001 *	H 8
RV002	H 7
RV003 *	J 7
RV011	H 9
RV012 *	H 8
RV021 *	G 5
RV022 *	J 5
RV038 *	G 5
RV041 *	G 7
RV043 *	G 7
RV051 *	G 5
RV052 *	G 6
RV053 *	H 6
RV061 *	H 6
RV062 *	H 6
RV063 *	H 5

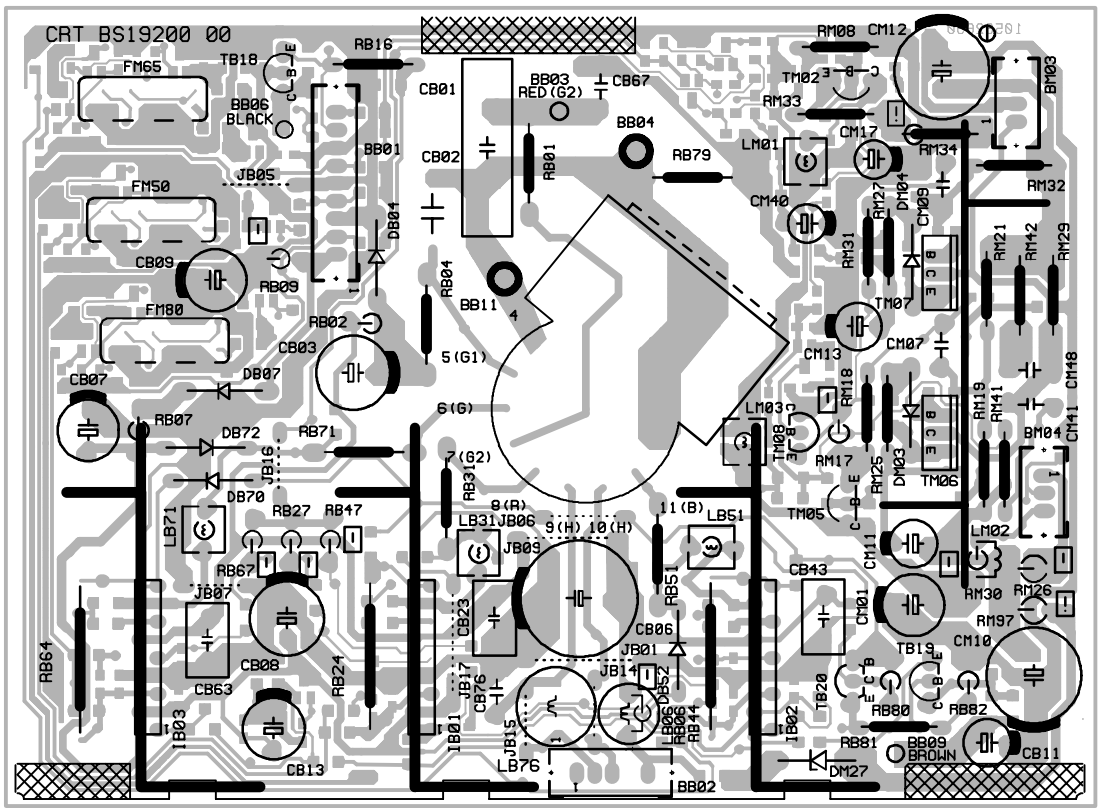
RV064	H 5
RV066 *	H 5
RV071 *	J 6
RV072 *	H 6
RV073 *	H 5
RV074	H 5
RV076 *	H 5
RV081 *	J 6
RV082 *	H 6
RV083 *	H 5
RV084	H 5
RV086 *	H 5
RV091 *	H 6
RV092 *	H 6
RV101 *	L 6
RV107 *	J 5
RV108 *	K 6
RV109 *	K 5
RV110 *	L 6
RV112 *	K 6
RV201 *	H 7
RV202 *	F 6
RV203 *	F 7
RV206 *	H 7
RV213 *	J 6
RV216 *	J 6
RV221 *	K 7
RV222 *	K 6
RV223 *	K 7
RV231	K 7
RV232	J 7
RV233	J 7
RV241 *	J 5
RV242 *	J 5
RX107 *	H 11
RX111	H 11
RX115 *	H 11
RX116 *	H 10
RX120 *	H 10
RX121 *	H 10
RX122	G 10
RX130 *	J 11
RX131 *	F 8
RX132 *	F 8

MAINS FILTER - MIS 19111

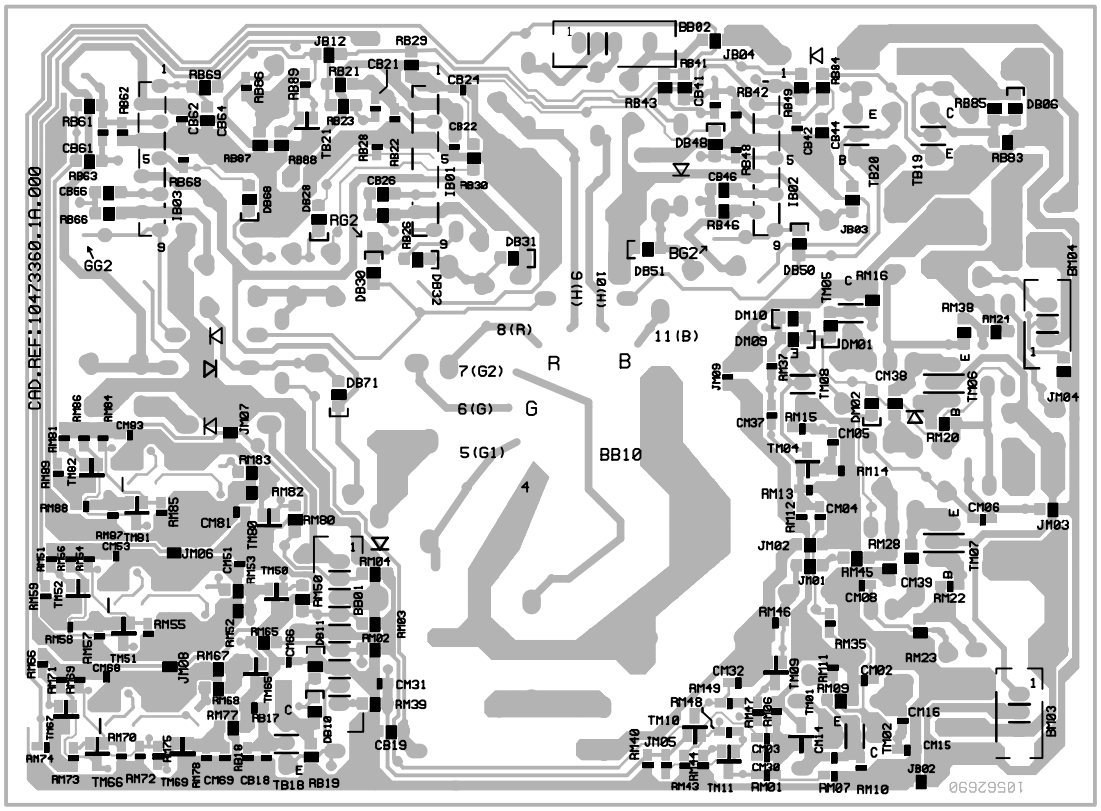




COMPONENT SIDE - CÖTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

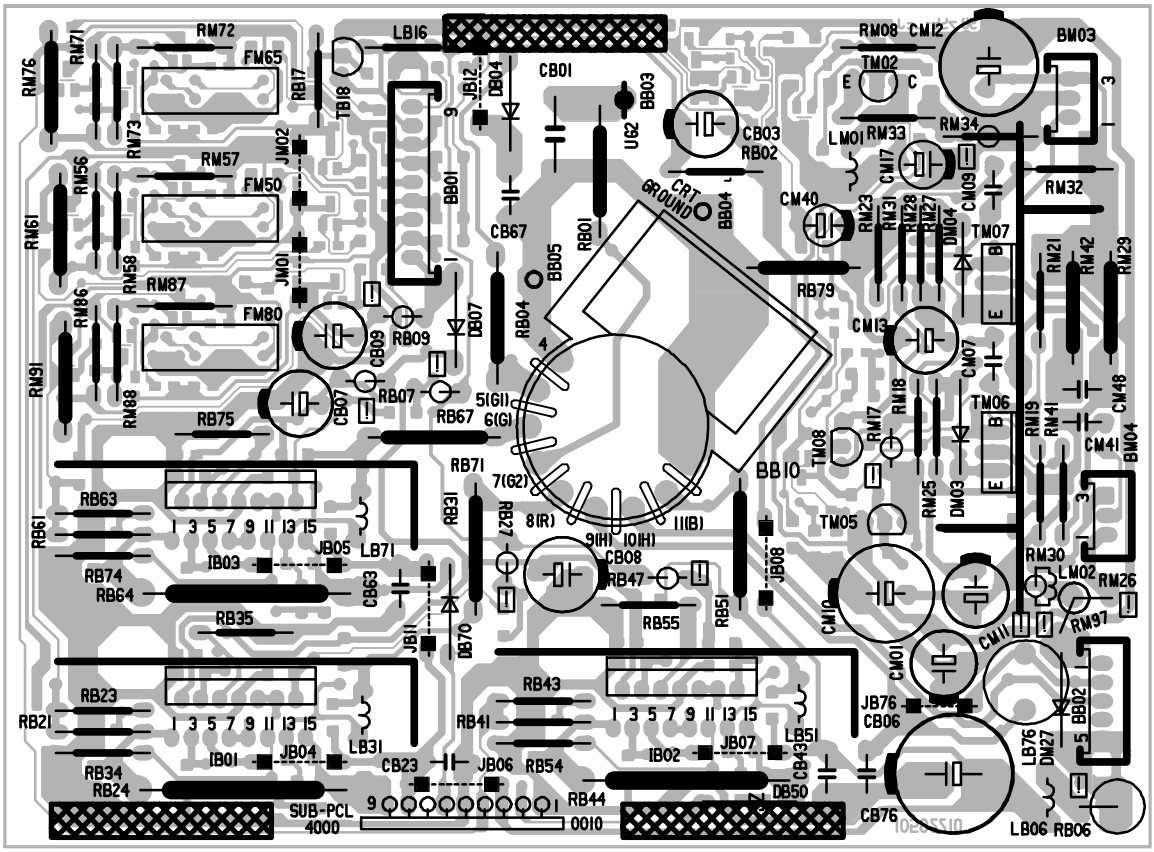


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

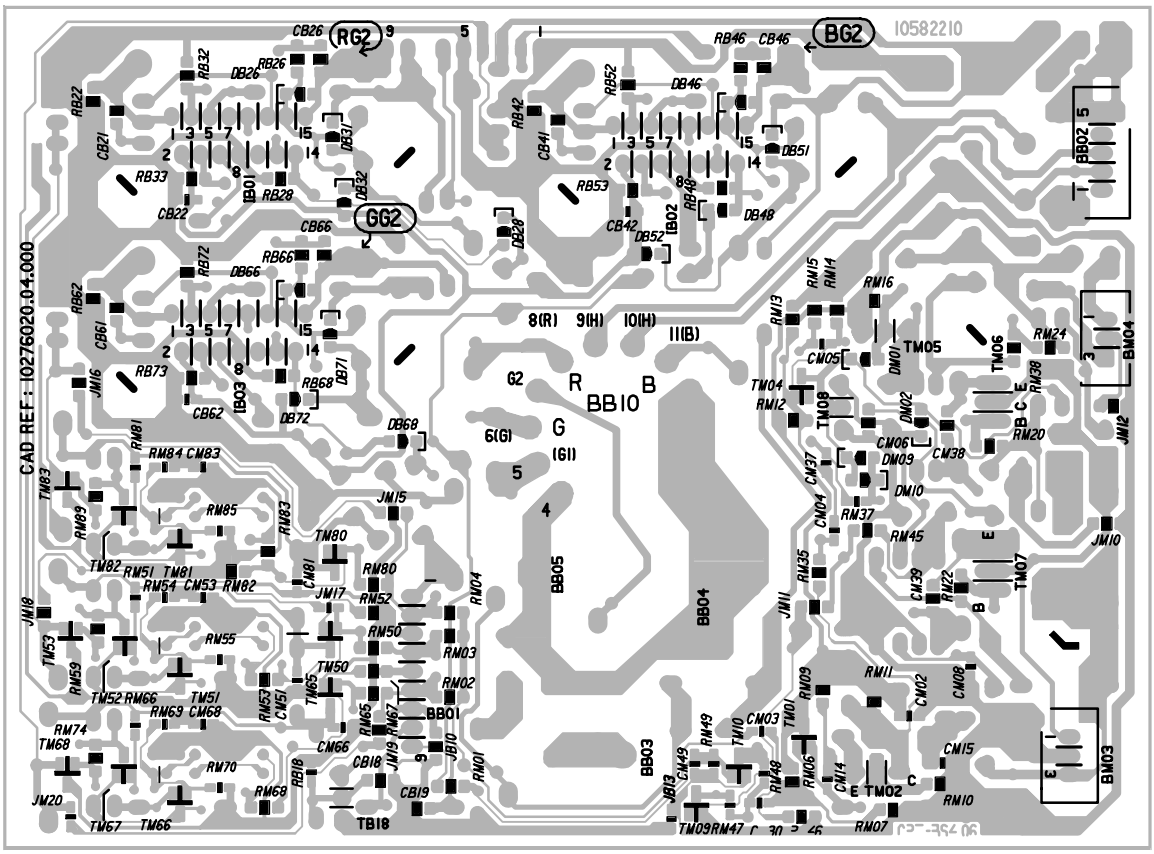


CRT BS19000

COMPONENT SIDE - CÖTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

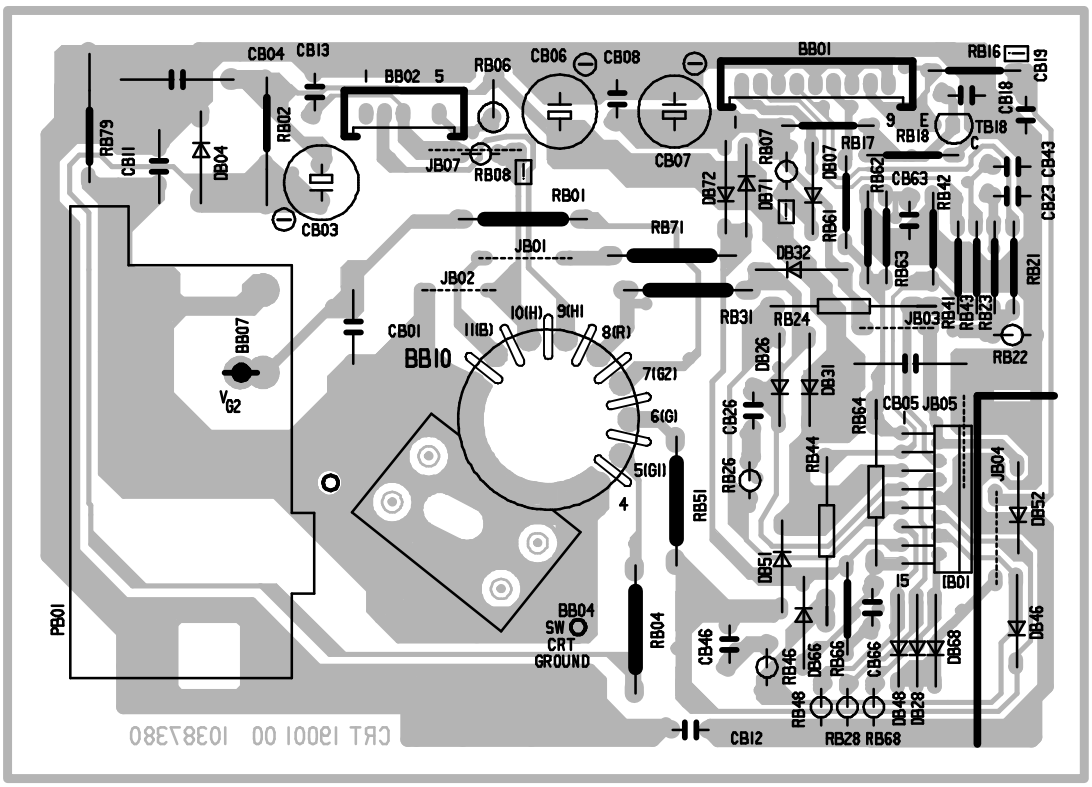


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

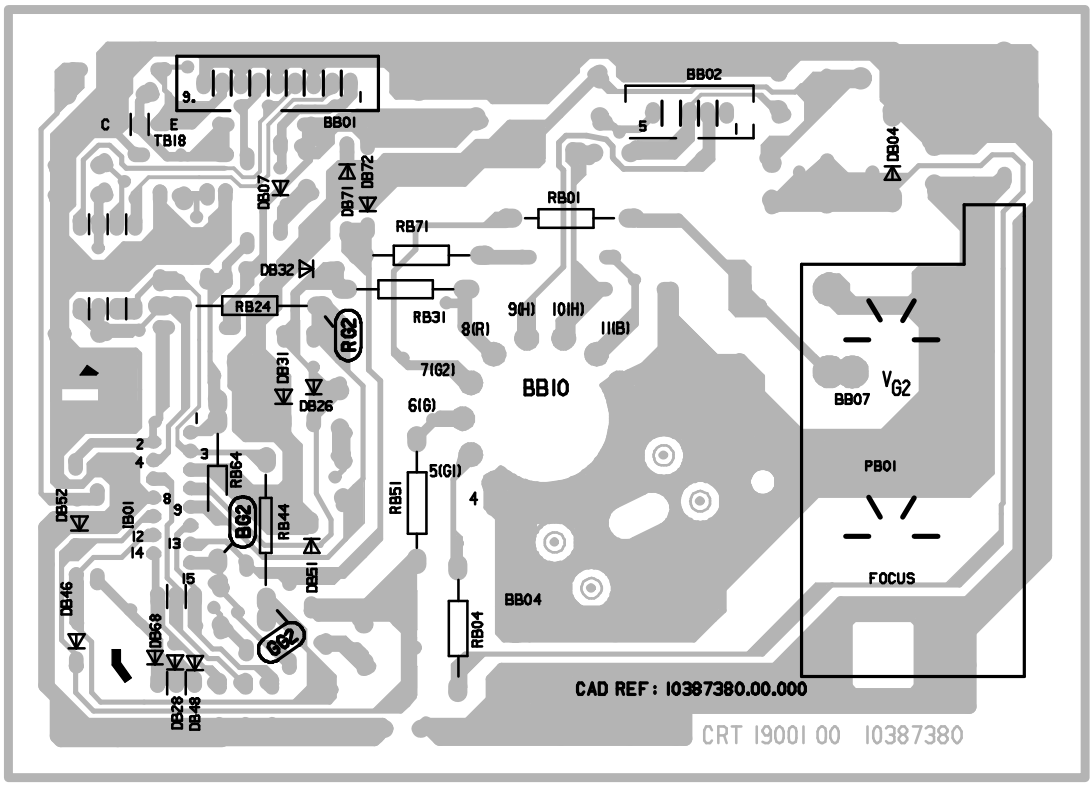


CRT 19001 - CRT 19004

COMPONENT SIDE - CÖTE COMPOSANTS - BESTÜCKUNGSSEITE -
LATO COMPONENTI - LADO COMPONENTES



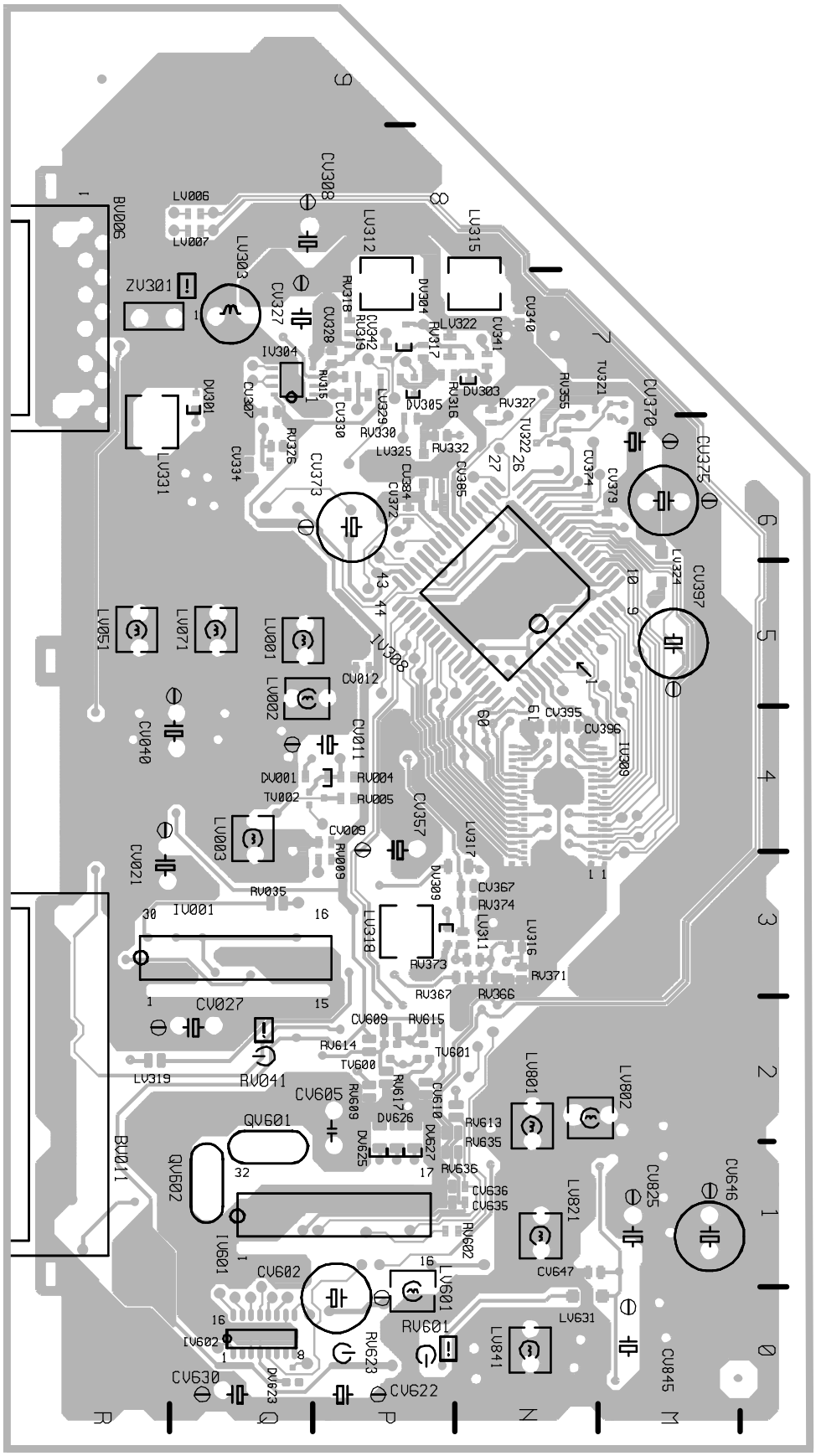
SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS



ICC19 50 Hz
First issue 09 / 97

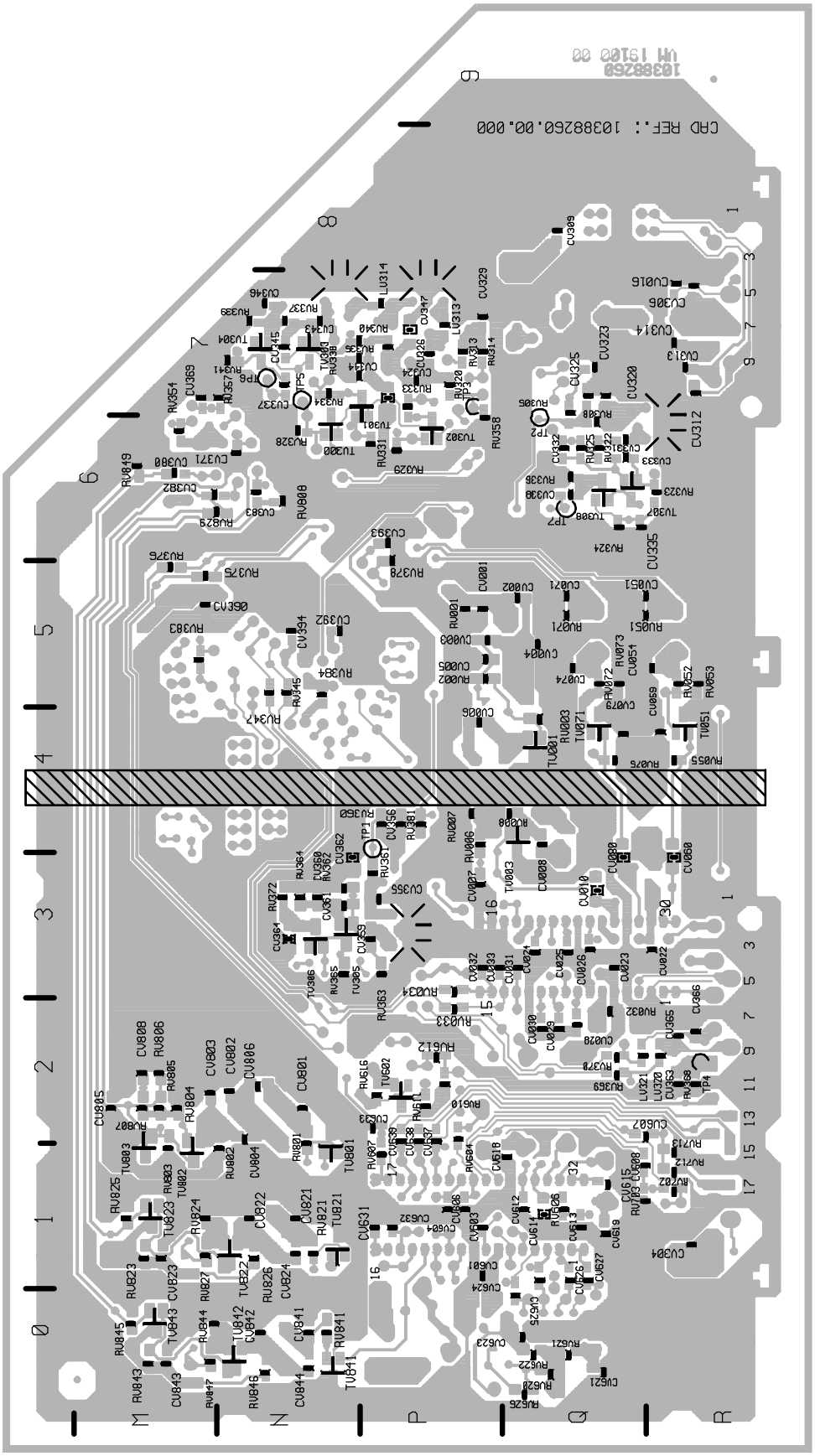
VM19100

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES



VM19100

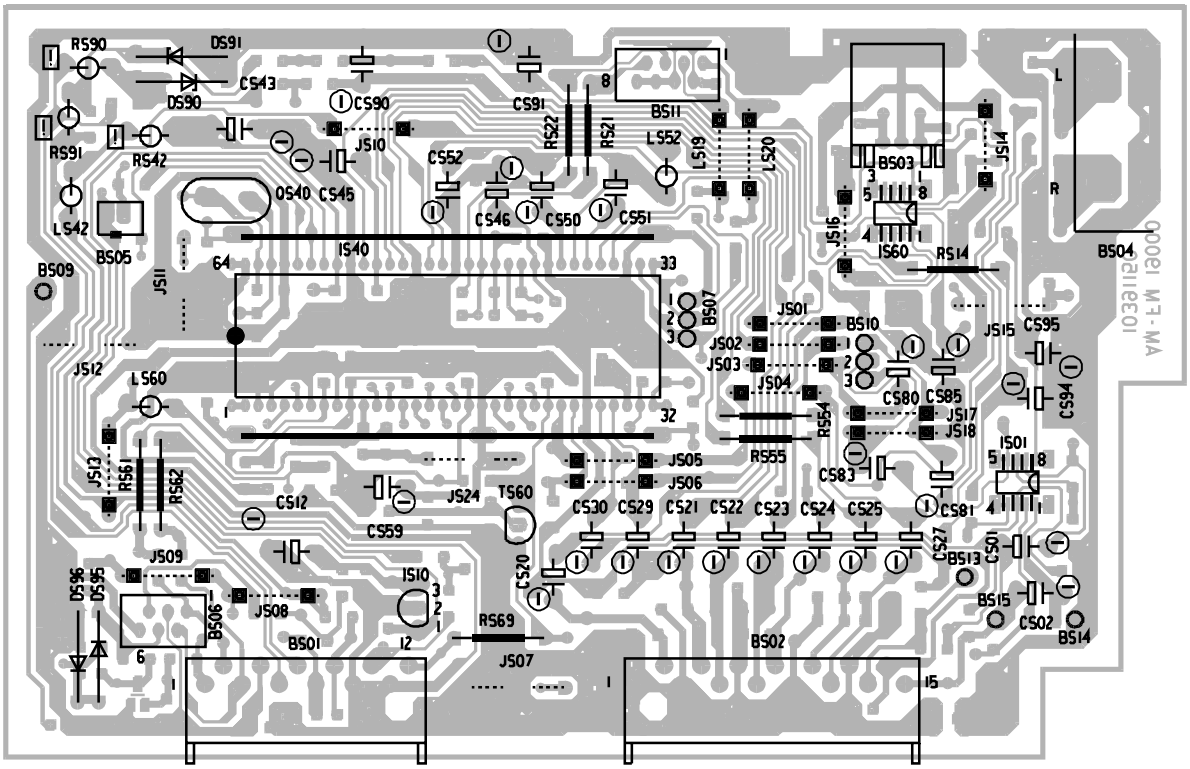
SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS



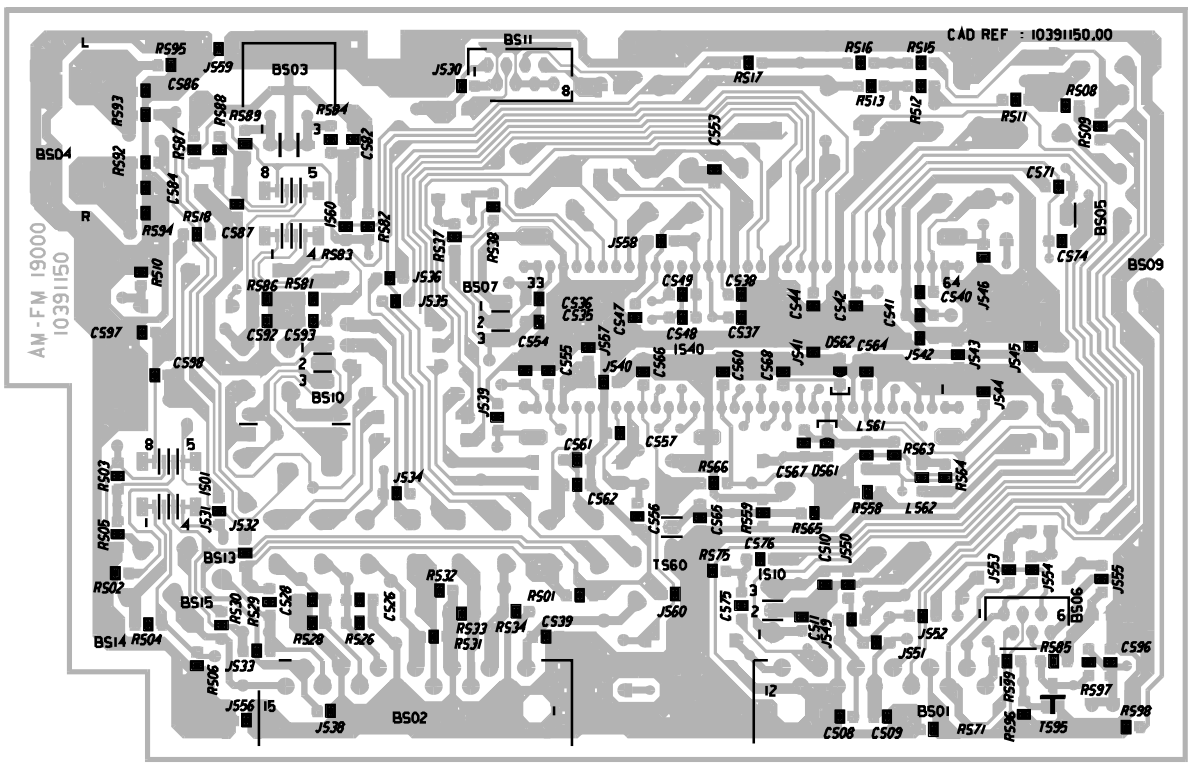
ICC19 100 Hz
First issue 09 / 97

AM/FM 19101 - AM/VD 19000

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES

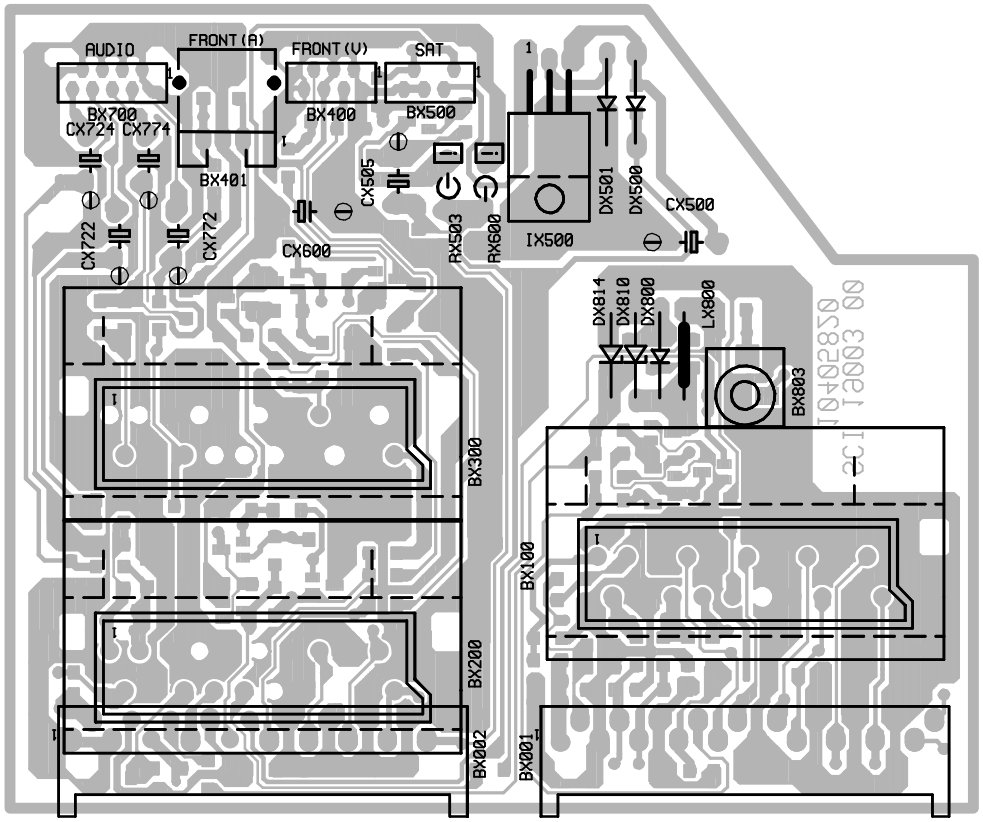


SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

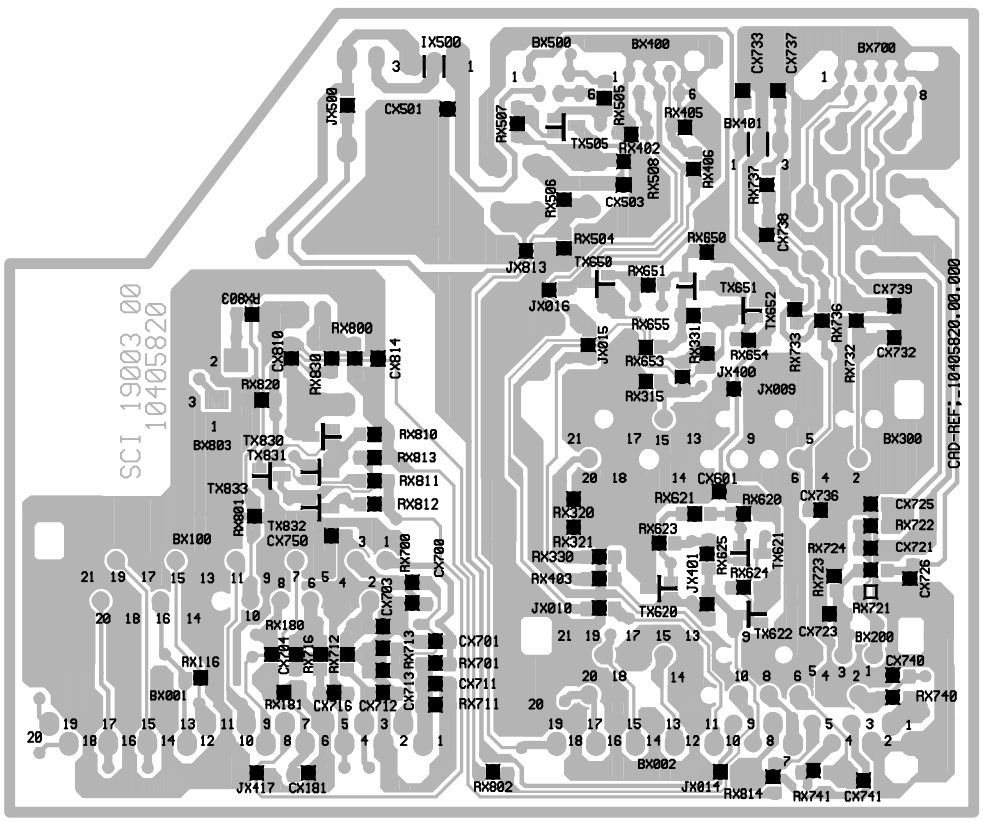


SCI 19003

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES



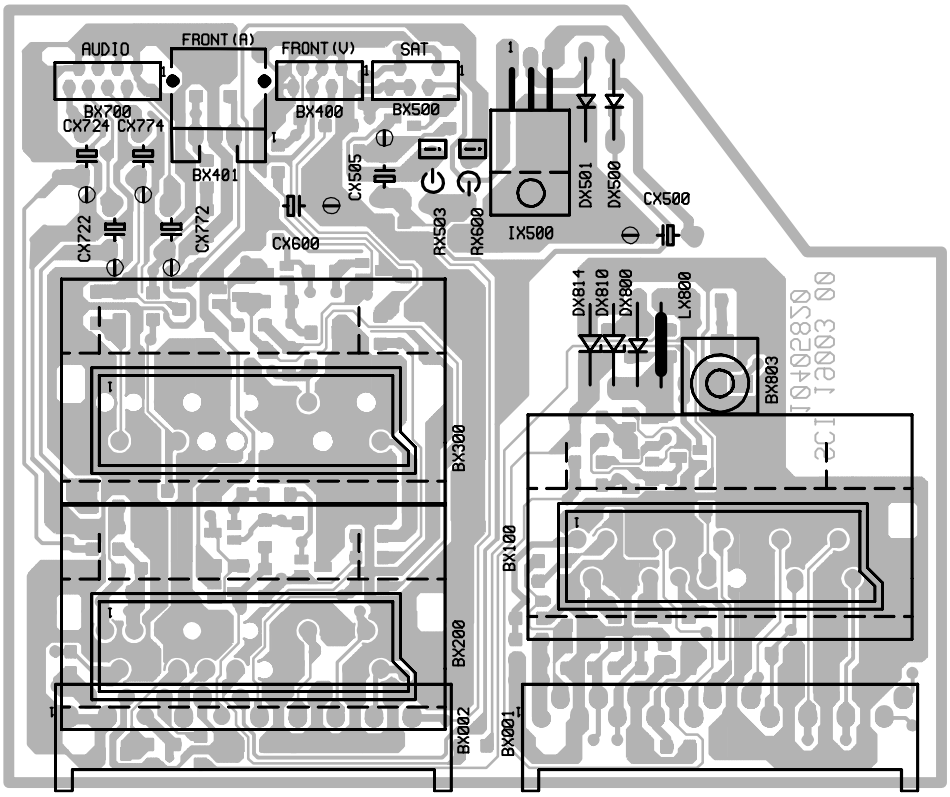
SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS



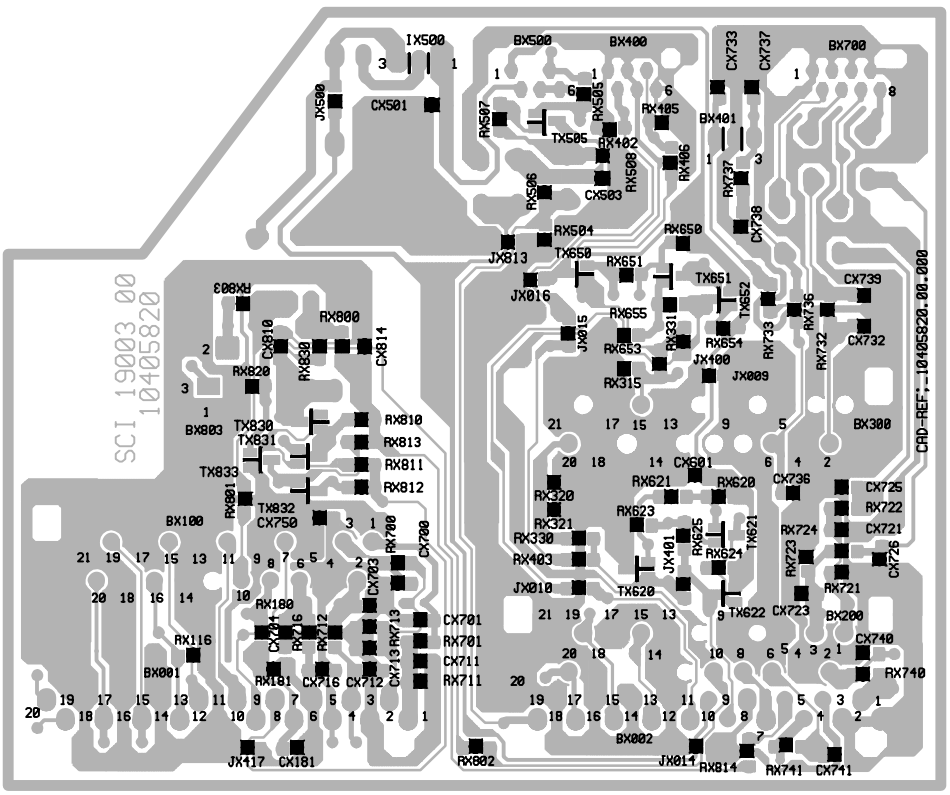
ICC19 50 Hz
First issue 09 / 97

SCI 19004

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES



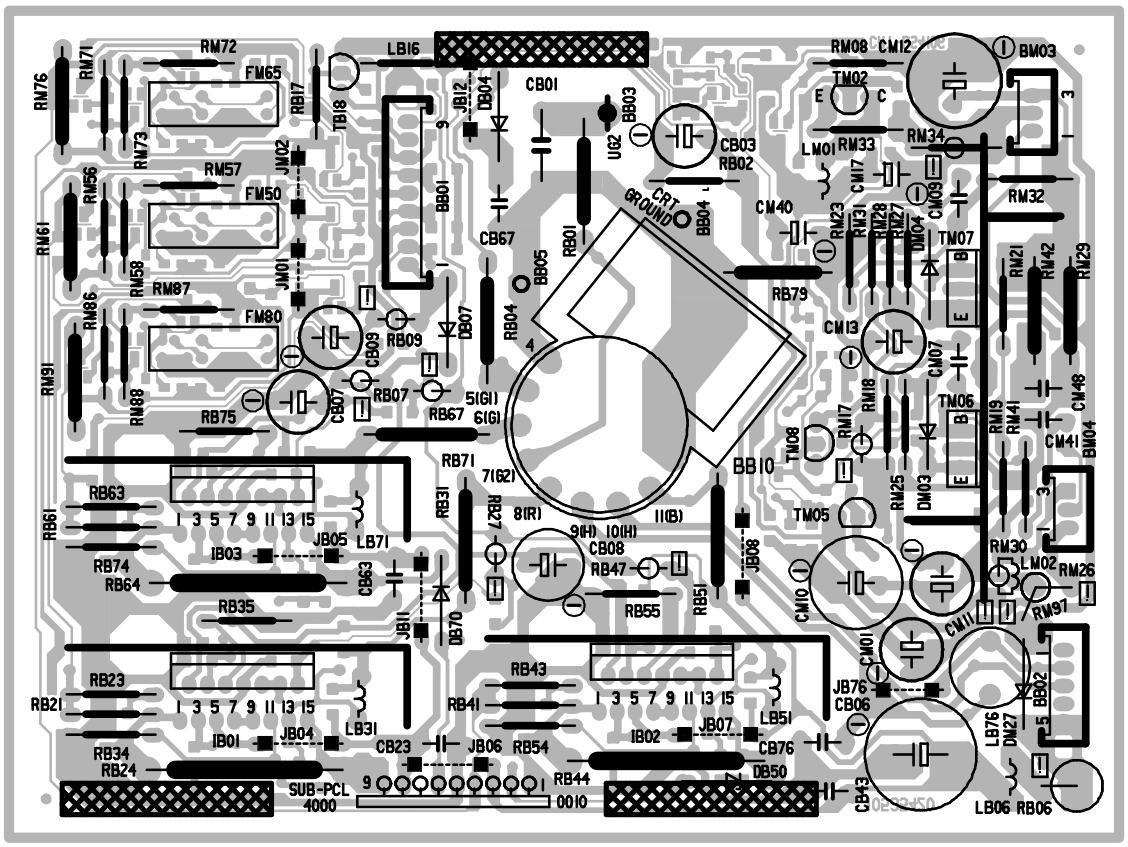
SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS



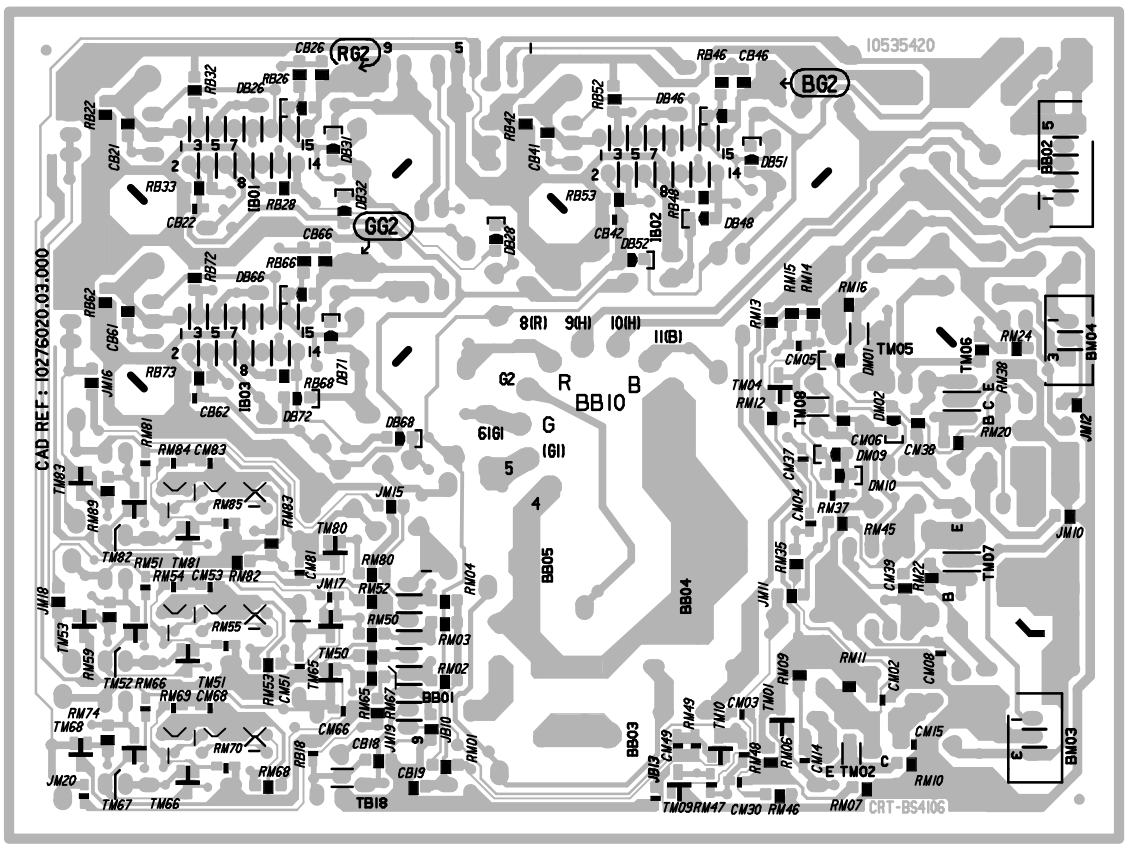
VIDEO AMPLIFIER BOARD - PLATINE AMPLIFICATEURS VIDEO - VIDEOVERSTÄRKERPLATTE - PIASTRA AMPLIFICATORE VIDEO - PLATINA AMPLIFICADOR VIDEO

CRT BS19100

COMPONENT SIDE - CÔTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES



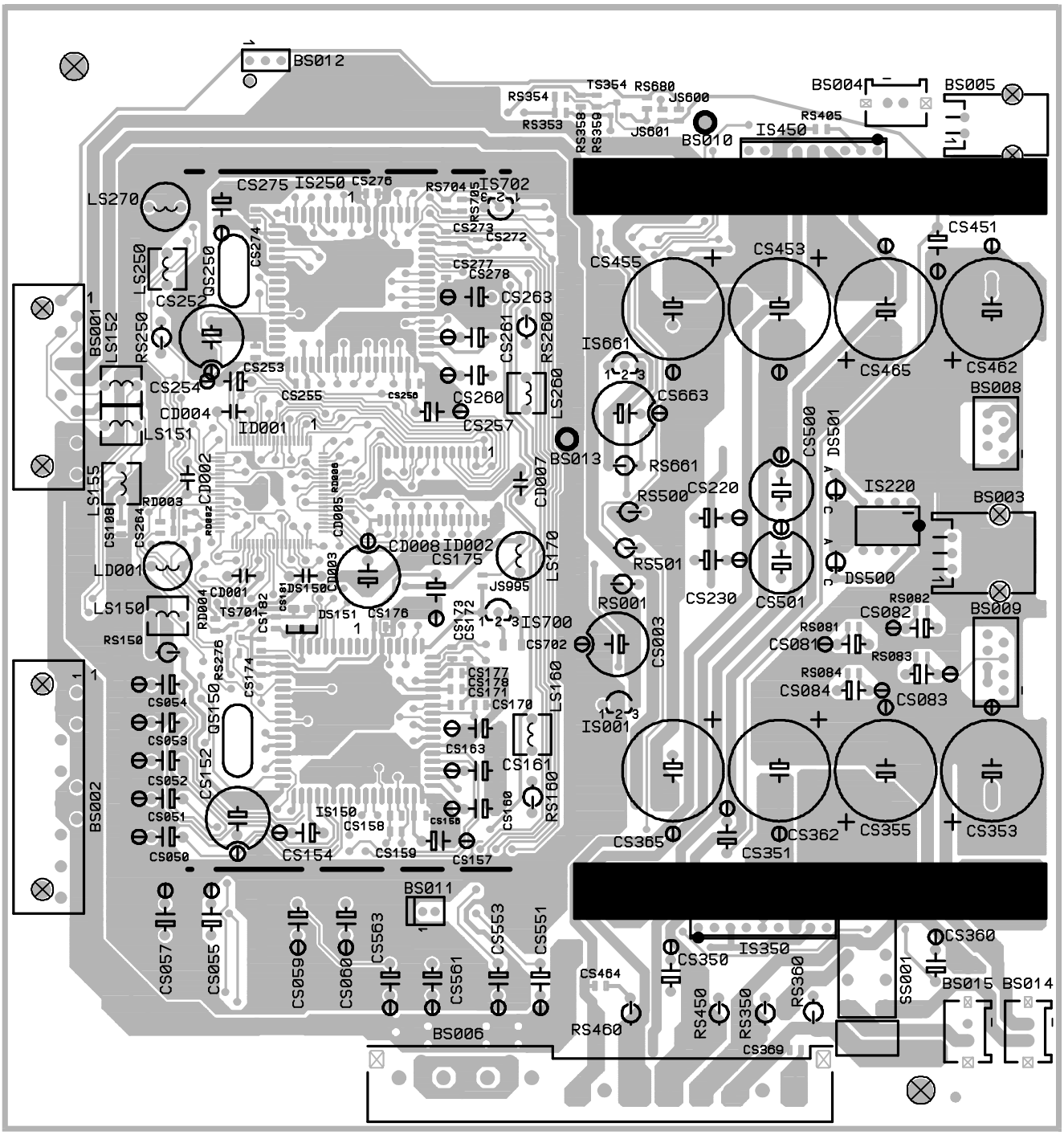
SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS



ICC19 100 Hz
First issue 09 / 97

AUDIO SIGNAL/DOLBY MODULE - MODULE AUDIO/DOLBY - TON SIGNAL/DOLBY BAUSTEIN - MODULO AUDIO/DOLBY - MÓDULO AUDIO/DOLBY

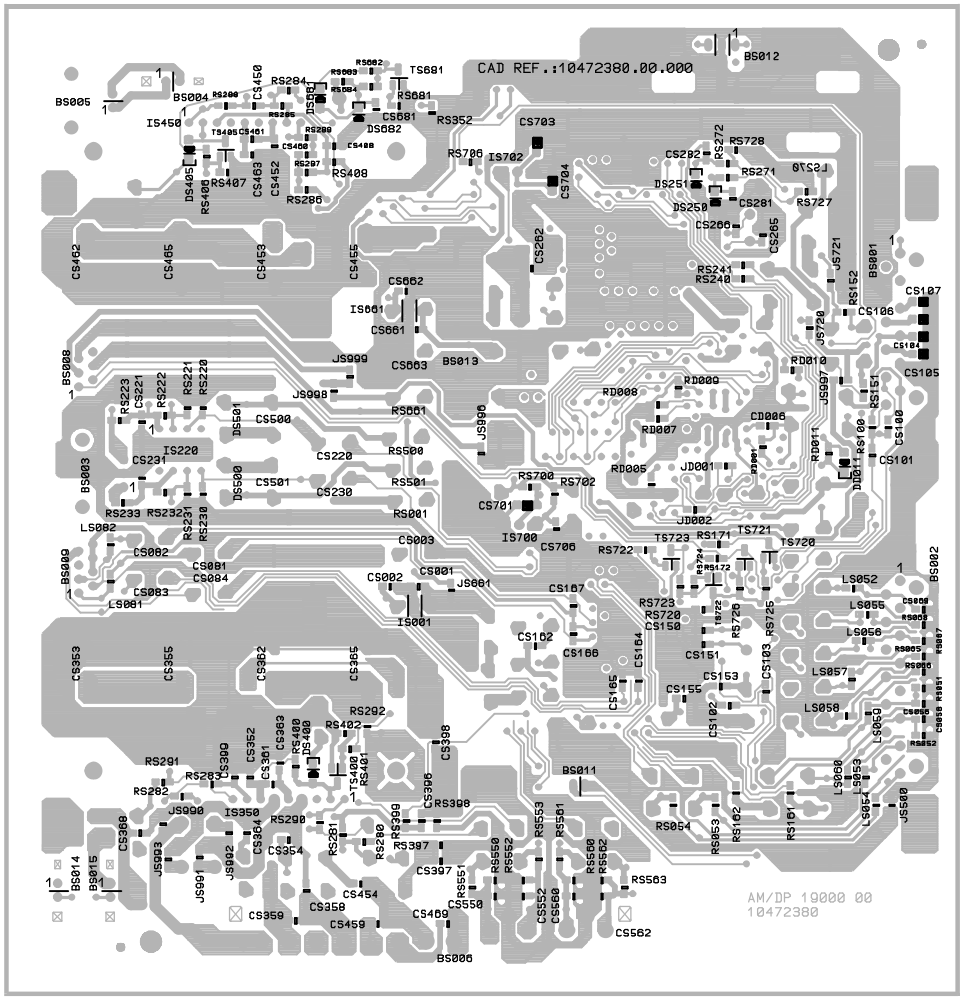
COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES



ICC19 50 Hz
First issue 09 / 97

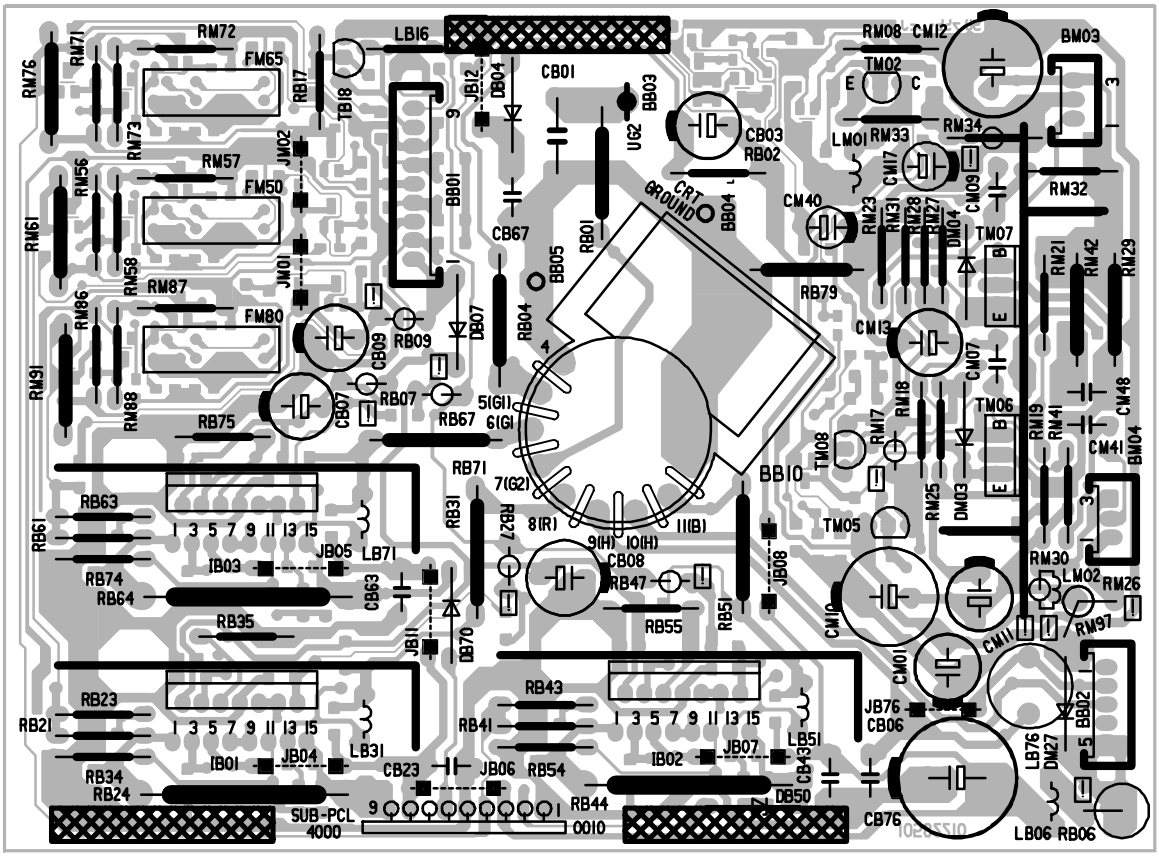
AUDIO SIGNAL/DOLBY MODULE - MODULE AUDIO/DOLBY - TON SIGNAL/DOLBY BAUSTEIN - MODULO AUDIO/DOLBY - MÓDULO AUDIO/DOLBY

SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

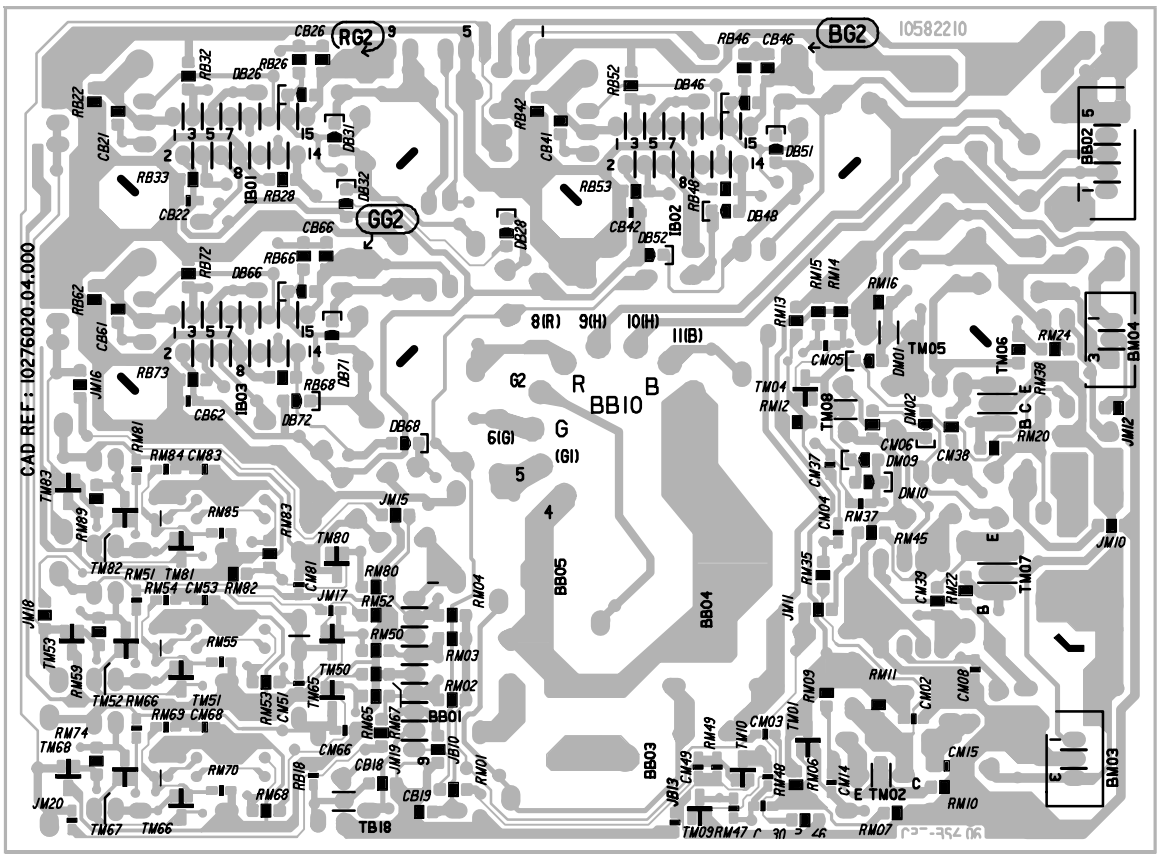


CRT BS 19100 - CRT BS 19400

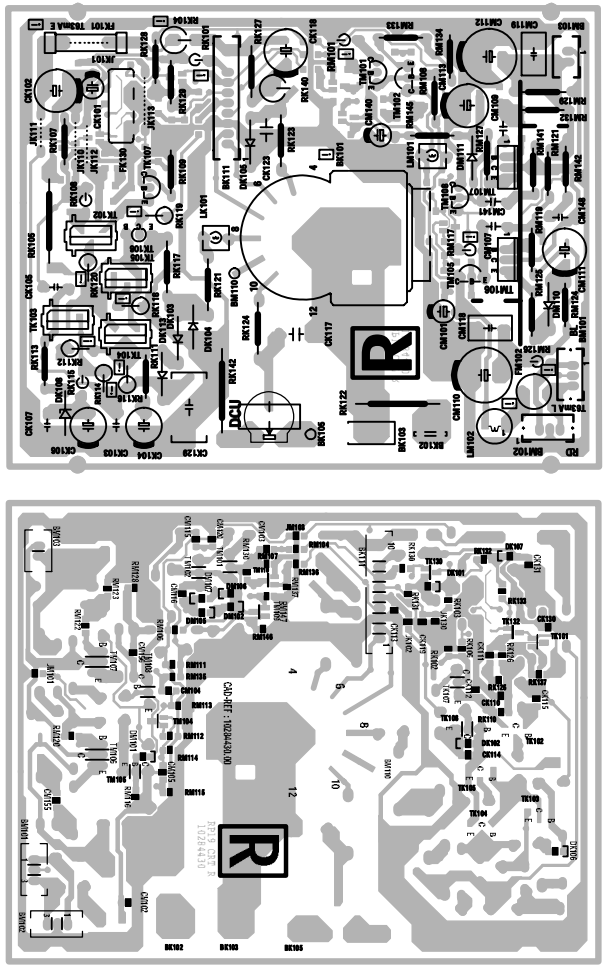
COMPONENT SIDE - CÔTE COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES



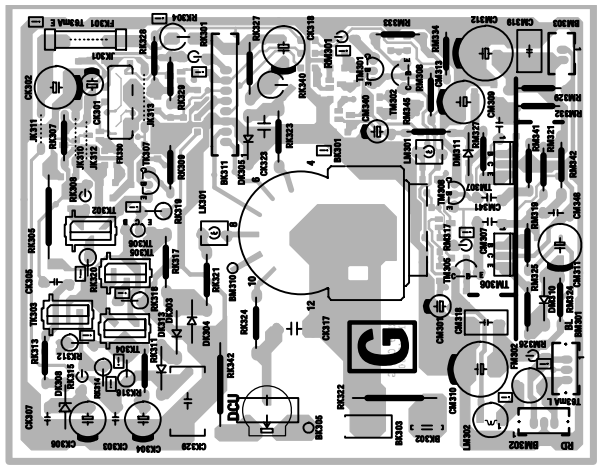
SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

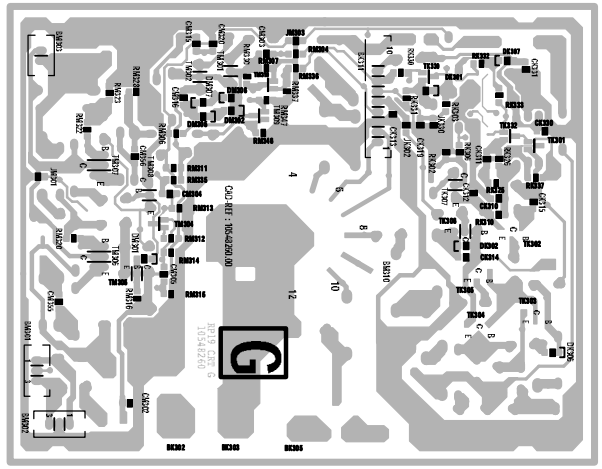


CRT R - RP19

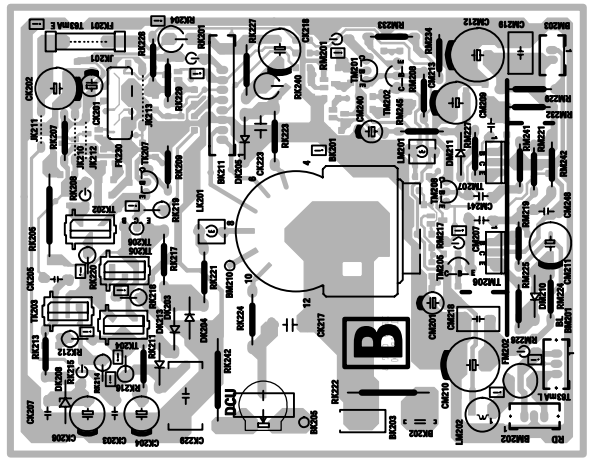


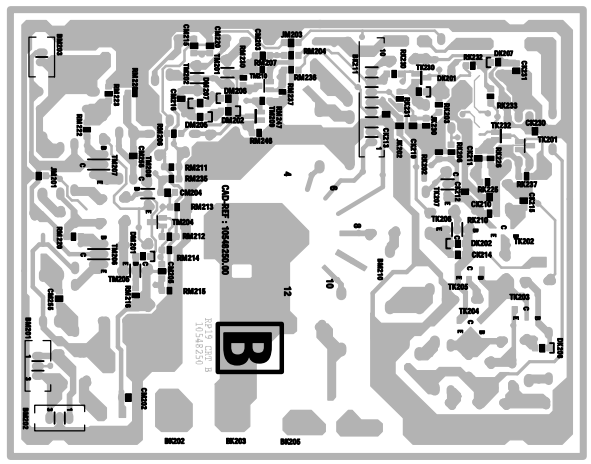
CRT G - RP19





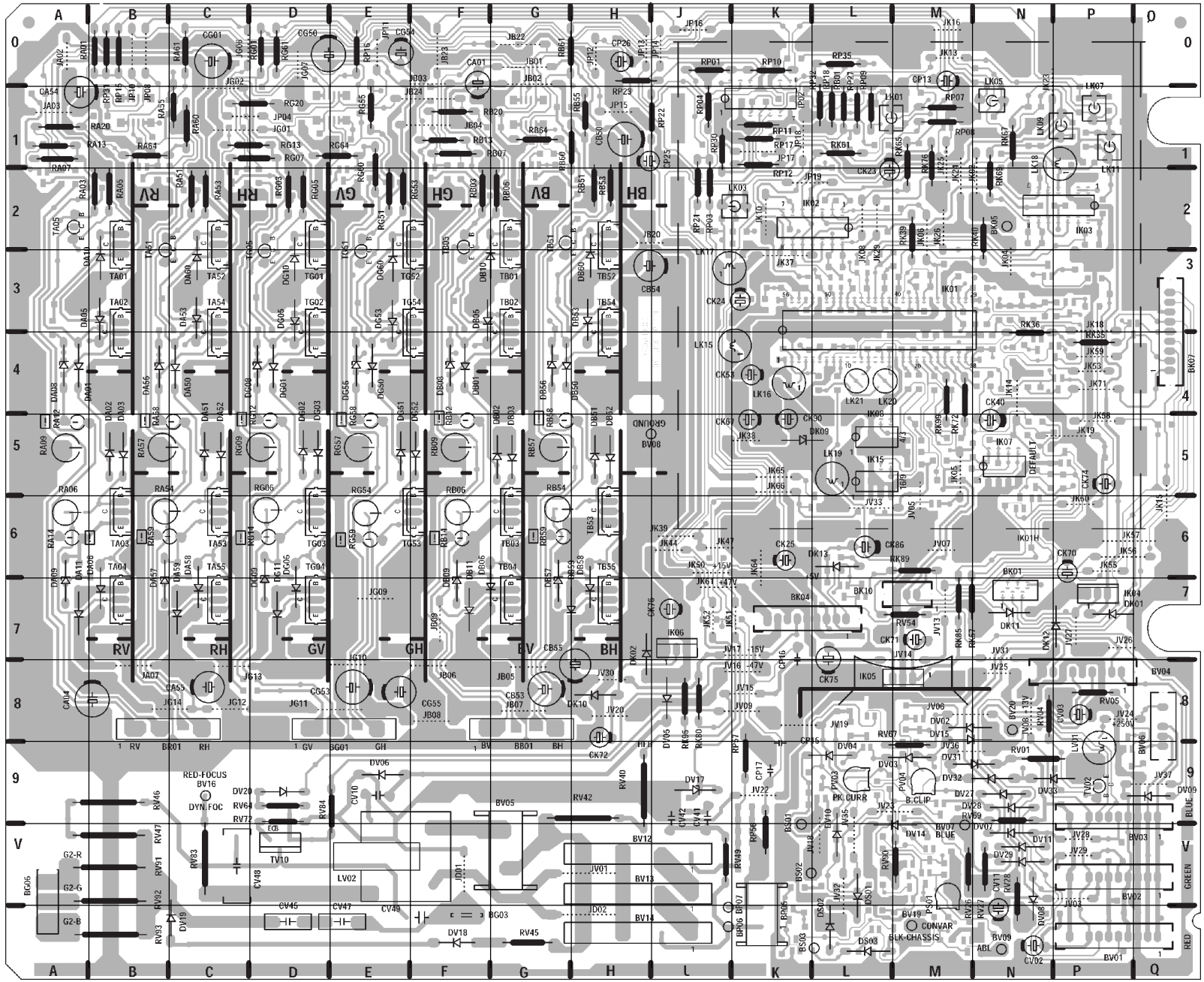
CRT B - RP19





RP C19
First issue 07 / 96

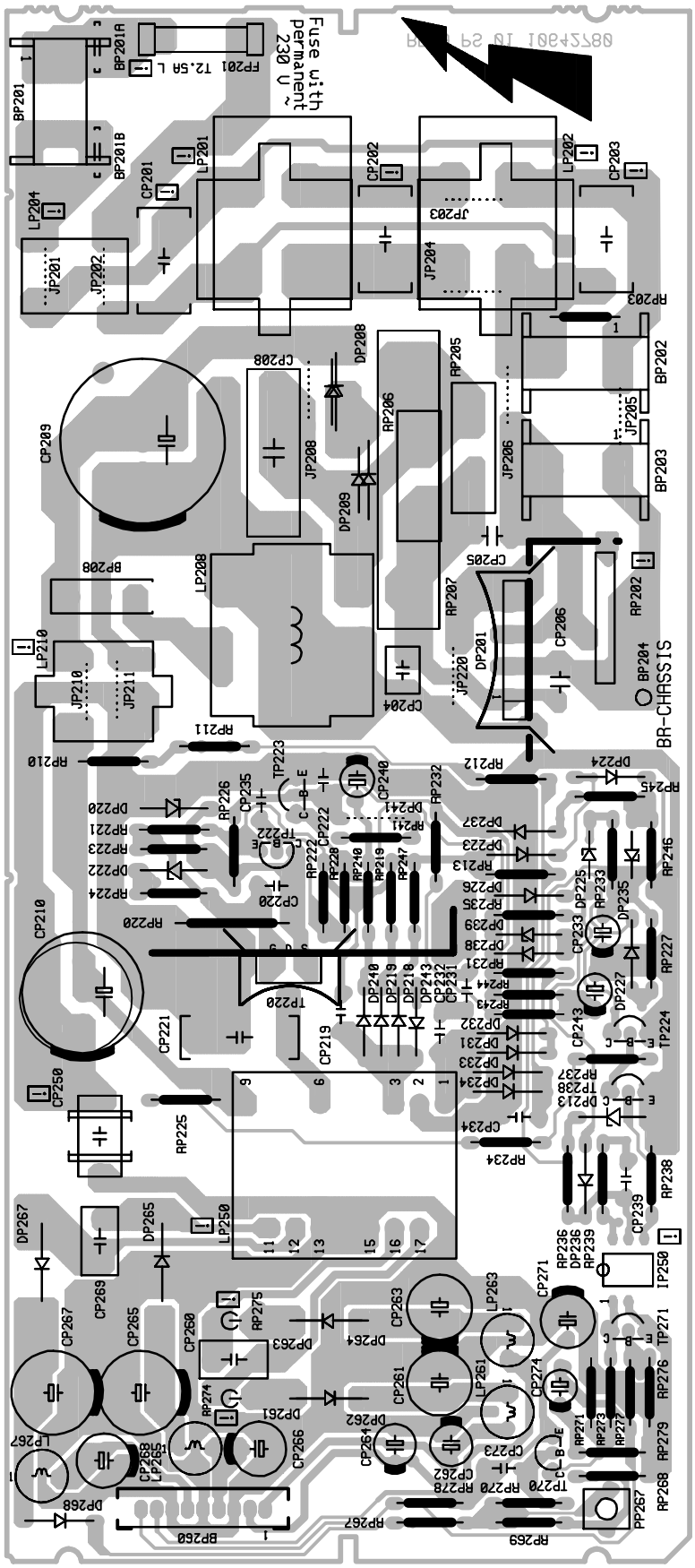
DIGITAL CONVERGENCE UNIT - PLATINE DE CONVERGENCES NUMERIQUES - DIGITALE KONVERGENZ EINHEIT - UNITÀ DI CONVERGENZA DIGITALE - UNIDAD DE CONVERGENCIA DIGITAL



SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

PS RP19 01

COMPONENT SIDE - COTE COMPOSANTS - BESTÜCKUNGSSEITE
LATO COMPONENTI - LADO COMPONENTES

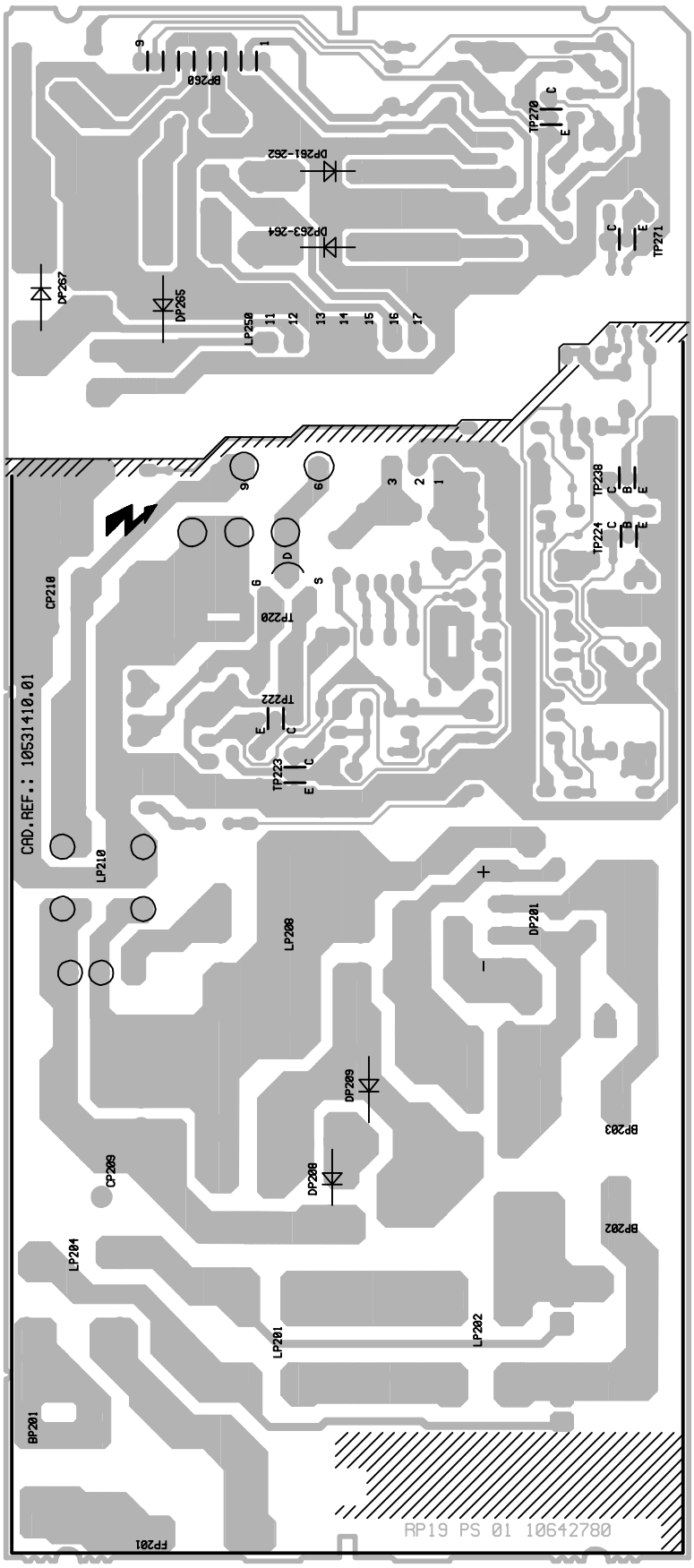


RP C19
First issue 07 / 98

Updated 07 / 99

PS RP19 01

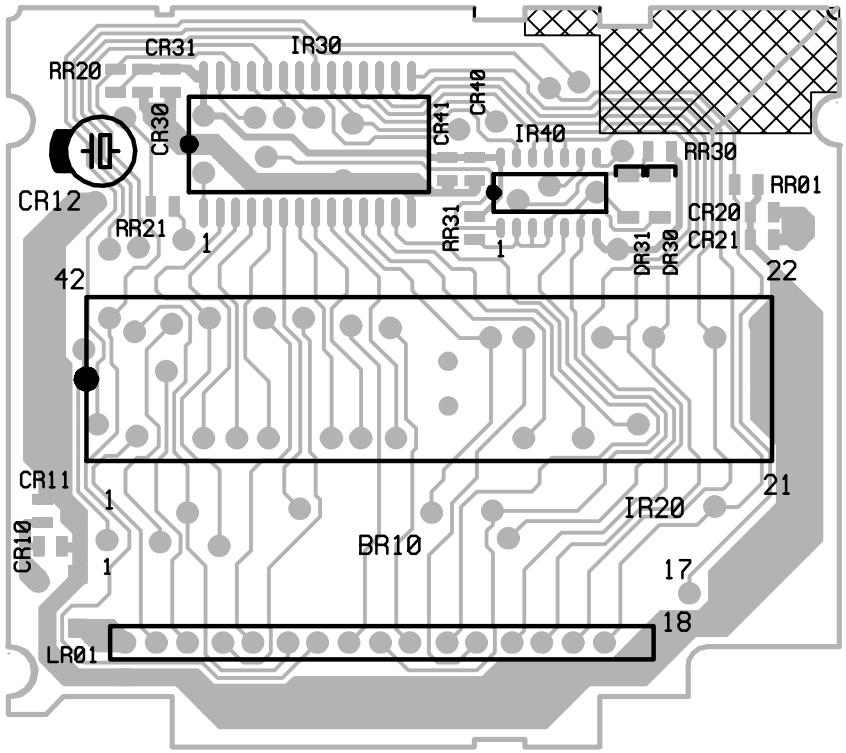
SOLDER SIDE - CÔTE SOUDURES - LÖTSEITE - LATO SALDATURE - LADO SOLDADURAS

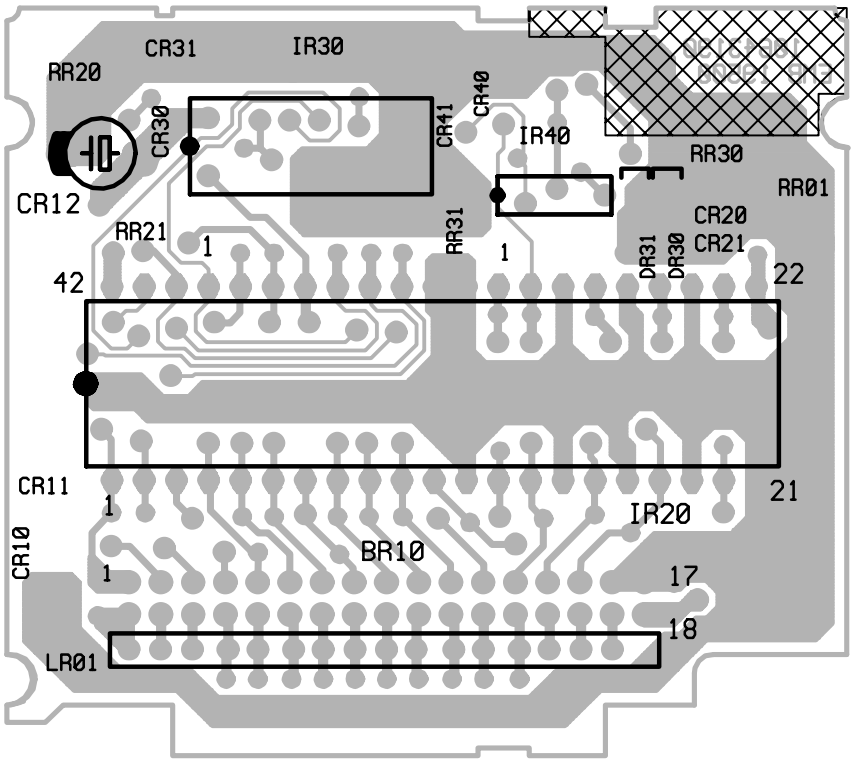


RP C19
First issue 07 / 98

Updated 07 / 99

EXTENSION MEMORY BOARD - PLATINE EXTENSION MEMOIRE - SPEICHERERWEITERUNGSPLATINE - PIASTRA ESTENSIONE MEMORIA - PLACA EXTENSION DE MEMORIA





THOMSON MULTI MEDIA

TV

Brandt FERGUSON NORDMENDE SABA TELEFUNKEN THOMSON

PARTS LIST
LISTE PIECES DETACHEES
ERSATZTEILLISTE
LISTA PARTI DI RICAMBIO
LISTA DE PIEZAS DE REPUESTO

THOMSON
29DL40E
Chassis ICC19

MODULES

MAIN	**IC19B5ND02L000**		
AMFM	**AM/FM19101**	**R**	**10349130**
CRT	**CRTBS19100**	**R**	**10354460**
DVT	**DVT19010**	**R**	**10510420**
FCB	**FCB1907**		**25312710**
KDB	**KDB1905**		**25312720**
MIS	**MIS19111**		**10537030**
SCI	**SCI19004**		**10581460**
SFB	**SFB4002**		**10306070**
VM	**VM19100**	**R**	**10353940**

GK01	TFMK1330T	10132410
IA001	TDA7269	10348790
IB001,002,003	TEA5101B	10231440
IF001	TDA8177F	10352880
II050	TDA9811/V3	10336130
IL062	TL082CD FLAT	10364130
IP050,**IX**001	MC7809/CT	70401402
IP060	TEA2261	90542470
IP130	MC7812/CT	46007600
IP140	TDA8139	10044580
IR001	ST90R92	10441970
IR002	M27C801-120F1 V4.00-1 STEP3	10586530
IR003	M24C32BN1	10462210
IR004	MC14094BD/HEF4094BT/ BU4094BF FLAT	20016020
IS001,060	MC4558CD	10401230
IS010	MC78L08ACP	10308410
IS40	MSP3410D-PP	10510320
IT001	SDA5275-2S	10449670
IT002	MSM514400D-60SJ	10359750
IV001	STV2162 CUT2.2	10529490
IV001	STV2165	10360480
IV304	LM358D FLAT	10258670
IV308	DMUO-UP	10325580
IV309	TMS4C2972DT	10458130
IV601	TDA9143S1	10516090
IV602	TDA4665T FLAT	10155740
IX900	TEA6415C	15081290
ZL041	MP160	⚠ 10457130
ZV301	MP40	⚠ 10469170

TA002,**TI**031, 032,070,**TL**001, 062,063,**TP**027, 152,161,162, 167,170,175, **TR**002,102,105, **TT**001,003,006, 007,011,012, **TX**621,651,830, 831,832,833, 955,960,965	BC847B SMD	11070770
TB018,**TV**108	BC327-40	16000450
TI010,033,034, 040,045,050, **TP**145,**TR**091, 095,106,**TT**004	BCR141 SMD	16006890
TI020,**TV**306	BF799 SMD	16005860
TI030,**TP**150, 166,190,**TT**002, 008,009,010, **TV**063,073,083, **TX**620,622,650, 652	BC857B SMD	30946660
TL004	MPSW01A	70436520
TL005	MPS750	16001340
TL030	ON4977/BU2525AX	10461310
TM001,004,010, 050,051,065, 066,080,081, **TP**026,**TV**002, 301,302,321, 322,601,802, 822,823,842, 843	BC846B SMD	16006260
TM002	BC337	16000520
TM005,**TP**008	BC548B	16000930
TM006	2SA1837	16001500
TM007	2SC4793	16001600
TM008	BC558B	16001110
TM009	BC848C SMD	20438166
TM052,053,067, 068,082,083, **TV**001,003,051, 071,300,600, 801,803,821, 841	BC856B SMD	16006310
TP025	600V 1A25	10353960
TP060	BUL810TH	10224370
TP146	BD241C	16001880
TR048	BCR185 SMD	16006900
TV002	TIP122	10045750
TV303	BF660 SMD	16005830
TV304,308	BC858B SMD	16006330
TV305,307	BF550 SMD	16005780
TX505	BC848B SMD	35030590
TX910,920,950	BC546B	45001866

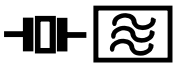
DA002,**DV**011, 012	LL42 SMD	16012530
DB004,007	1N4004	44009009
DB026,028,046, 048,066,068, **DF**002,028, **DL**070,072, **DM**001,002,009, 010,**DP**051,060, 061,151,152, 160,175,178, 179,190,**DR**090, **DT**001,002,003, 004,005,006, 007,008,009, 010,**DV**025,026, 027,028,221, **RV**052	LL4148 SMD	16012450
DB031,032,051, 052,071,072, **DL**057,**DS**061, 062,**DV**104,108, **DX**120,151,220, 251,301,351	BAV203 SMD	10222420
DB050,070	BAV21	16007470
DF001,**DK**01,02, 03,04,**DL**092, **DP**008,027, **DR**091	1N4148	44009209
DF007	ZMM15	16030060
DF011	BZW04-58	10368210
DF031,033, **DL**001,051,052, **DM**003,004, **DP**050	RGP10G	10459090
DH001	ZMM33	10376460
DI001,002,040, 041,051,070, 071	BA782S	20542050

R : RECYCLED PART
: PIECE RECYCLEE
: AUSTAUSCHTEILE
: RICAMBIO RICICLATO
: MODULO REPROCESADO

For any requests, please contact THOMSON multimedia after sales service area
Pour toutes précisions, contactez votre service apres vente local THOMSON multimedia
Für weitere Auskünfte, wenden Sie sich bitte an die THOMSON multimedia Kundendienste
Per precisazioni, contattare l'assistenza tecnica THOMSON multimedia
Para cualquier pregunta, por favor contactar con el responsable de zona del servicio postventa de THOMSON multimedia

No copying, translation, modification on other use authorized. All rights reserved worldwide. • Tous droits de reproduction, de traduction, d'adaptation et d'exécution réservés pour tous les pays. • Sämtliche Urheberrechte an diesen Texten und Zeichnungen Vervielfältigungen - auch auszugsweise - nur mit unserer vorherigen Zustimmung zulässig. Alle Rechte vorbehalten. • I diritti di riproduzione, di traduzione, e esecuzione sono riservati per tutti i paesi. • Derechos de reproduccion, de traduccion, de adap

DL030	DTV32F-1500	10452490
DL032	BYT08P-400A	16008650
DL034,036	BYT01-200	16008600
DL041,DP108, 109,130	RGP30D	10455370
DL043	RGP10M	10455320
DL046,DP112, 113	MUR1100E	10360280
DL050	BZX85C22	11072690
DL060	ZMM3,3	16030170
DL066	BZX55B47	11073450
DL071	BZX55C33	11073690
DP010,011,012, 013	GP30M	10455410
DP022	FUF4005	16009580
DP040	BZX85B2V7	16020210
DP041	BAT42	16007410
DP052,133,134	1N4001	16008160
DP053	RGP15G	10272800
DP110	RGP50M	10298160
DP140	MR822	10458490
DR104	BZX55B9V1	70438220
DV001	ZMM2,7 SMD	16030100
DV101	ZMM6,8 SMD	70439940
DV301,305,309	BB729S SMD	20542090
DV303,304, LV320	BA582 SMD	16012130
DV623	BZX84C5V1 SMD	16030330
DX810	BZX55B8V2	40441820
DX814	BZX55B5V1/ZPD5V1 2%	44035702
GE01	TLUV5300 LED	11137650



FI010	OFWK3954M FOS	10357610
FI015	OFWG3970M FOS	10512420
FI020	OFWK9453M FOS	10176450
QI053	6M0HZ	48042300
QI070	6M5HZ	20356510
QR001	27M0HZ	10254120
QS040	18M432HZ	10334670
QT001	20M48HZ	10495020
QV601	4M433619HZ	10397980
QV602	3M579545HZ	10087720

FI001	40M4HZ	20300950
FI002	38M9HZ	10319260
FI030	77M8HZ	10348570
FI040	6M6HZ	10437980
FM050,065,080	100NS	10203890
LV312,315	7M96HZ	10519360
LV318	7M96HZ	10519350
LV331	7M96HZ	10519340

PI030,035	2K2 OHM	10308240
PI050	22K0 OHM	10272680

JP310	1K0 OHM 1% 0,25W		15012570
RA013,014	4R7 OHM 5% 0,35W	⚠	10226310
RB001,004,079	1K5 OHM 5% 0,50W		10121880
RB006	47R0 OHM 5% 0,70W		10181910
RB007,009, RM017,RP050, RV601	10R0 OHM 5% 0,25W	⚠	15009580
RB021	619R0 OHM 1% 0,40W		15019980
RB024,044,064	39K0 OHM 2% 4W		10358890
RB027,047,067	2K2 OHM 5% 0,50W	⚠	10152130
RB031,051,071	330R0 OHM 10% 0,50W		14050190
RB041	681R0 OHM 1% 0,40W		15020320
RB061	649R0 OHM 1% 0,40W		15020140
RF011	1R5 OHM 5% 0,50W	⚠	15022560
RF012,013	1R0 OHM 1% 0,70W		10254220
RF015	15R0 OHM 265V PTC	⚠	10237730
RF020	270R0 OHM 1% 0,70W		10302230
RL013	4R7 OHM 5% 0,50W	⚠	15010040
RL015	1R0 OHM 5% 0,25W	⚠	15009730
RL029	2R2 OHM 5% 0,50W	⚠	10440420
RL040	0R27 OHM 5% 2,50W		10263600
RL043	2R2 OHM 5% 0,70W	⚠	13000480
RL047	47R0 OHM 5% 0,50W		10233220
RL052	46K4 OHM 1% 0,70W		10403710
RL081	68K1 OHM 1% 0,12W		10433880
RL082	61K9 OHM 1% 0,12W		10516840
RM026	330R0 OHM 5% 0,35W	⚠	10248240
RM030	22R0 OHM 5% 0,25W	⚠	35031220
RM057,072,087	221R0 OHM 1% 0,40W		15014310
RM058,073,088	274R0 OHM 1% 0,40W		15015080
RM061,076,091	3K3 OHM 1% 0,40W		15017250
RP005	18R0 OHM 220V PTC	⚠	41398800
RP010	2R7 OHM 5% 4,50W		10379110
RP020	0R12 OHM 5% 2,50W		10334390
RP022	100R0 OHM 5% 4,50W		10379830
RP066	4K22 OHM 1% 0,40W		15018600
RP100	10M0 OHM 5% 0,70W	⚠	10074320
RS042	4R7 OHM 5% 0,25W	⚠	35032200
RV041	8R2 OHM 5% 0,25W	⚠	15010150
RX503	15R0 OHM 5% 0,25W	⚠	15009630

CB001	10N0F 3K0V		14036450
CB067,076	100P0F 20% 2K0V		14006310
CL030	1N9F 5% 2K0V		10406390
CL031	11N6F 2,5% 2K0V		40406501
CL032	27N0F 5% 400V		10263540
CL034	12N0F 5% 400V		43324600
CL037	410N0F 5% 400V		10180780
CL041,043	330P0F 20% 1K0V		14035270
CL052	10N0F 5% 400V		14035870
CL084	3N9F 5% 400V		10522580
CL146	150P0F 20% 1K0V		30937590
CM048	470P0F 10% 400V		14002340
CP001,002	100N0F 20% 275V	⚠	10331520
CP010	1N5F 10% 1K0V		20338740
CP011,012	4N7F 1K0V		10058740
CP013,020	150U0F 385V		43424800
CP022	470P0F 10% 2K0V		10099390
CP023	2N2F 10% 1K0V		13090980
CP050,053	330P0F 20% 400V		14002220
CP100	1N5F 20% 400V	⚠	10442770
CP101	150P0F 20% 400V	⚠	20738090
CP111	1N0F 10% 630V		10345030
CP112	3N3F 5% 630V		10490550
CP135,137,138	470P0F 20% 1K0V		14035910

LL001	DRIVER		10468760
LL008	DSTGDS35	⚠	10510870
LL037		⚠	10518230
LP001		⚠	10203560
LP020	SMT89LZ	⚠	10459670
LP070	DRIVER	⚠	60412091

OTHER PARTS
AUTRES PIECES
SONSTIGE TEILE
ALTRE PARTI
OTRAS PIEZAS

BB010	CATHODE RAY TUBE SOCKET SUPPORT TUBE CATHODIQUE BILDROEHRENFASSUNG SUPPORTO TUBO CATODICO SOPORTE T.R.C	⚠	80298800
BJ10	CINCH SOCKET PRISE CINCH CINCH-BUCHSE PRESA CINCH TOMA CINCH		10037440
BJ11	SVHS SOCKET PRISE SVHS S-VHS-BUCHSE PRESA SVHS TOMA SVHS		20392900
BQ12	JACK SOCKET PRISE JACK BUCHSE PRESA JACK TOMA JACK		10539510
BS004	CINCH SOCKET PRISE CINCH CHINCH-BUCHSE PRESA CINCH TOMA CINCH		10368990
BX100,200,300	SCART SOCKET PRISE PERITEL EURO-AV-BUCHSE EUROPRESA NORMALIZZATA EUROCONECTOR		10402480
CH200	ON/OFF SWITCH CONTACTEUR MARCHE/ARRET EIN-AUS SCHALTER CONTATTORE ACCESO/SPENTO CONTACTOR MARCHA/PARADA	⚠	10276500
FP01	2A5T TIME-LAG FUSE 2A5T FUSIBLE TEMPORISE 2A5T SICHERUNG 2A5T FUSIBILE TEMPORIZZATO 2A5T FUSIBLE TEMPORIZADO	⚠	10246750
IR001	IC SUPPORT 4X17 SUPPORT CI 4X17 IC-FASSUNG 4X17 SUPPORTO CI 4X17 SOPORTE CI 4X17		67626900

IR002	IC SUPPORT 2X16 SUPPORT CI 2X16 IC-FASSUNG 2X16 SUPPORTO CI 2X16 SOPORTE CI 2X16		80407771
NH001	CTT5000T UHF/VHF TUNER CTT5000T TETE UHF/VHF CTT5000T UHF/VHF TUNER CTT5000T TUNER UHF/VHF CTT5000T SINTONIZADOR UHF/VHF	R	20808880
SK01,02,03,04	MICROSWITCH MICRO CONTACTEUR MIKROSCHALTER MICROINTERRUTTORE MICROCONTACTOR		30011100
SP005	RELAY 12V RELAIS 12V RELAIS 12V RELE 12V RELE 12V	⚠	90294100

EQUIPMENT/PRESENTATION
EQUIPEMENT/PRESENTATION
AUSSTATTUNG/GEHAEUSE
PARTI VARIE
EQUIPO/PRESENTACION

FRONT PANEL FACADE FRONTPLATTE PANNELLO FRONTALE PANEL FRONTAL		25334830
REAR PANEL DOS RUECKWAND PANNELLO POSTERIORE TAPA POSTERIOR	⚠	25334790
LOGO THOMSON LOGO THOMSON SCHRIFTZUG THOMSON MARCHIO THOMSON LOGOTIPO THOMSON		25314150
LOUDSPEAKER GUIDE CORNET ACOUSTIQUE FUEHRUNGSSCHIENE LAUTSPRECHER GUIDA ALTOPARLANTE GUIA ALTAVOZ		25301600
8R OHM 15W LOUDSPEAKER 60X125 8R OHM 15W HAUT PARLEUR 60X125 8R OHM 15W LAUTSPRECHER 60X125 8R OHM 15W ALTOPARLANTE 60X125 8R OHM 15W ALTAVOZ 60X125		10467060
8R OHM 15W LOUDSPEAKER 27X42 8R OHM 15W HAUT PARLEUR 27X42 8R OHM 15W LAUTSPRECHER 27X42 8R OHM 15W ALTOPARLANTE 27X42 8R OHM 15W ALTAVOZ 27X42		10317160
ON/OFF BUTTON TOUCHE MARCHE/ARRET EIN-AUS TASTE TASTO ACCESSO/SPENTO TECLA MARCHA/PARADA		25326530
POWER SUPPLY LEAD CORDON D'ALIMENTATION NETZKABEL CAVO DI ALIMENTAZIONE CABLE DE ALIMENTACION	⚠	10260880
A68EGD038X322(A) CATHODE RAY TUBE A68EGD038X322(A) TUBE CATHODIQUE A68EGD038X322(A) FARBBILDROEHRE A68EGD038X322(A) TUBO CATODICO A68EGD038X322(A) T.R.C	⚠	10524710
DEGAUSSING COIL BOBINE DE DEMAGNETISATION ENTMAGNETISIERUNGSSPULE BOBINA DI SMAGNETIZZAZIONE BOBINA DE DESIMANTACION	⚠	47320181
RCT4000 REMOTE CONTROL RCT4000 TELECOMMANDE RCT4000 FERNBEDIENUNG RCT4000 TELECOMANDO RCT4000 TELEMANDO		10525960
FOLDING BOX EMBALLAGE CARTON KARTON IMBALLAGGIO CARTONE EMBALAJE CARTON		25326100
FITTING DOWNER CALE INFERIEURE POLSTER UNTEN DISTANZIATORE INFERIORE CALZO INFERIOR		25326070
FITTING UPPER CALE SUPERIEURE POLSTER OBEN DISTANZIATORE SUPERIORE CALZO SUPERIOR		25326060

INSTRUCTIONS
NOTICES
ANLEITUNGEN
ISTRUZIONI
MANUALE

29DL40E PARTS LIST 29DL40E LISTE DE PIECES DETACHEES 29DL40E ERSATZTEILLISTE 29DL40E LISTA PARTI DI RICAMBIO 29DL40E LISTA DE PIEZAS DE REPUESTO	35067730
ICC19 100HZ SERVICE MANUAL ICC19 100HZ DOC TECHNIQUE ICC19 100HZ TECHNISCHE DOKUMENTATION ICC19 100HZ DOCUMENTAZIONE TECNICA ICC19 100HZ DOCUMENTACION TECNICA	35047630
29DL40E UM THOMSON D/I/GB/E/F/NL/DK/S 29DL40E NU THOMSON D/I/GB/E/F/NL/DK/S 29DL40E BA THOMSON D/I/GB/E/F/NL/DK/S 29DL40E IU THOMSON D/I/GB/E/F/NL/DK/S 29DL40E IU THOMSON D/I/GB/E/F/NL/DK/S	25362230
29DL40E UM THOMSON NL/DK/S/GB 29DL40E NU THOMSON NL/DK/S/GB 29DL40E BA THOMSON NL/DK/S/GB 29DL40E IU THOMSON NL/DK/S/GB 29DL40E IU THOMSON NL/DK/S/GB	25362240
29DL40E UM THOMSON RU/CZ/PL/H/SK 29DL40E NU THOMSON RU/CZ/PL/H/SK 29DL40E BA THOMSON RU/CZ/PL/H/SK 29DL40E IU THOMSON RU/CZ/PL/H/SK 29DL40E IU THOMSON RU/CZ/PL/H/SK	25368330

The description and characteristics given here are of informative significance only, and non committal. To keep up the high quality of our products, we reserve the right to make any changes or improvement without previous notice. • Les descriptions et caractéristiques figurant sur ce document sont données à titre d'information et non d'engagement. En effet, soucieux de la qualité de nos produits, nous nous réservons le droit d'effectuer, sans préavis, toute modification ou amélioration. • Die Beschreibungen und Daten in dieser Anleitung dienen nur zur Information und sind nicht bindend. Um die Qualität unserer Produkte ständig zu verbessern, behalten wir uns das Recht auf Änderungen vor. • Le descrizioni e le caratteristiche date su questo documento sono fornite a semplice titolo informativo e senza impegno. Ci riserviamo il diritto di eseguire, senza preavviso, qualsiasi modifica o miglioramento. • Las descripciones y características que figuran en este documento se dan a título de información y no de compromiso. En efecto, en bien de la calidad de nuestros productos, nos reservamos el derecho de efectuar, sin previo aviso, cualquier modificación o mejora.

THOMSON multimedia S.A au capital de 12375616000 FF - 46, Quai Alphonse Le Gallo 92648 Boulogne Cedex FRANCE - RCS NANTERRE B 333 773 174